Mitchell D. Roth
Mayor

Deanna Sako
Managing Director

Ramzi I. Mansour
Director

Brenda Iokepa-Moses
Deputy Director

County of Hawai'i

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

345 Kekūanāo'a Street, Suite 41 · Hilo, Hawai'i 96720 · cohdem@hawaiicounty.gov
Ph: (808) 961-8083 · Fax: (808) 961-8086

January 2, 2024

Mary Alice Evans
Director, Office of Planning and Sustainable Development
Environmental Review Program

SUBJECT: Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-FONSI)

The County of Hawai'i Department of Environmental Management herewith transmits the subject Draft Environmental Assessment (DEA) for which there is an Anticipated Finding of No Significant Impact (DEA-AFONSI). The DEA-AFONSI has been prepared pursuant to Chapter 343, Hawai'i Revised Statutes, and Chapter 11-200.1, Hawai'i Administrative Rules. Please publish notice of this DEA-FONSI in the upcoming issue of The Environmental Notice.

Included in the DEA-AFONSI are Draft Literature and Field Inspection Report, Geotechnical Report, Natural Resources Assessment, and copies of comments received during pre-assessment consultation along with the corresponding responses regarding the subject project.

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

Sincerely,

Ramzi Mansour, P.E.
Director, Department of Environmental Management

Cc: Gary Deis, Carollo Engineers
Chris Laude, Wastewater Division Acting Chief
Chris Sparber, Wastewater Division Acting Deputy Chief
Mark Grant, Wastewater Division Project Coordinator

From: webmaster@hawaii.gov
To: DBEDT OPSD Environmental Review Program
Subject: New online submission for The Environmental Notice
Date: Monday, January 8, 2024 3:10:19 PM

Action Name

Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project

Type of Document/Determination

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

HRS §343-5(a) Trigger(s)

- (1) Propose the use of state or county lands or the use of state or county funds

Judicial district

South Hilo, Hawai‘i

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

(3) 2-1-013:002 (por.)

Action type

Agency

Other required permits and approvals

See DEA Chapter 8

Proposing/determining agency

County of Hawai'i Department of Environmental Management

Agency contact name

Mark Grant

Agency contact email (for info about the action)

MarkJ.Grant@hawaiicounty.gov

Email address or URL for receiving comments

publiccomment@wilsonokamoto.com

Agency contact phone

(808) 961-8083

Agency address

345 Kekūanāo‘a St.
Suite 41
Hilo, HI 96720
United States
Map It

Was this submittal prepared by a consultant?

Yes

Consultant

Wilson Okamoto Corporation

Consultant contact name

Harlee Meyers

Consultant contact email

hmeyers@wilsonokamoto.com

Consultant contact phone

(808) 946-2277

Consultant address

1907 S Beretania St.
400
Honolulu, HI 96826
United States
Map It

Action summary

The CoH-DEM is proposing to pursue efforts to replace and improve the treatment processes at the WWTP to address identified deficiencies. These replacement facilities and improvement projects may be completed as one single project, or may be phased-in over time, subject to available funding and other factors.
The replacement facilities contemplated under this project are to be sited nearby or adjacent to the ones being replaced within the existing developed area of the WWTP and within areas previously cleared adjacent to the plant. The proposed rehabilitated, replacement, and new facilities are needed to ensure continued current operations and to meet future needs at the WWTP. Also, facilities have been identified which are needed to meet current code requirements and to ensure the long-term operation of the plant functions.

Reasons supporting determination

See DEA Chapter 6

Attached documents (signed agency letter & EA/EIS)

- Hilo-WWTP-DEA.pdf
- DEM-Signed-Transmittal-Letter.pdf

Action location map

- Hilo-WWTP-Project-Area.zip

Authorized individual

Harlee Meyers

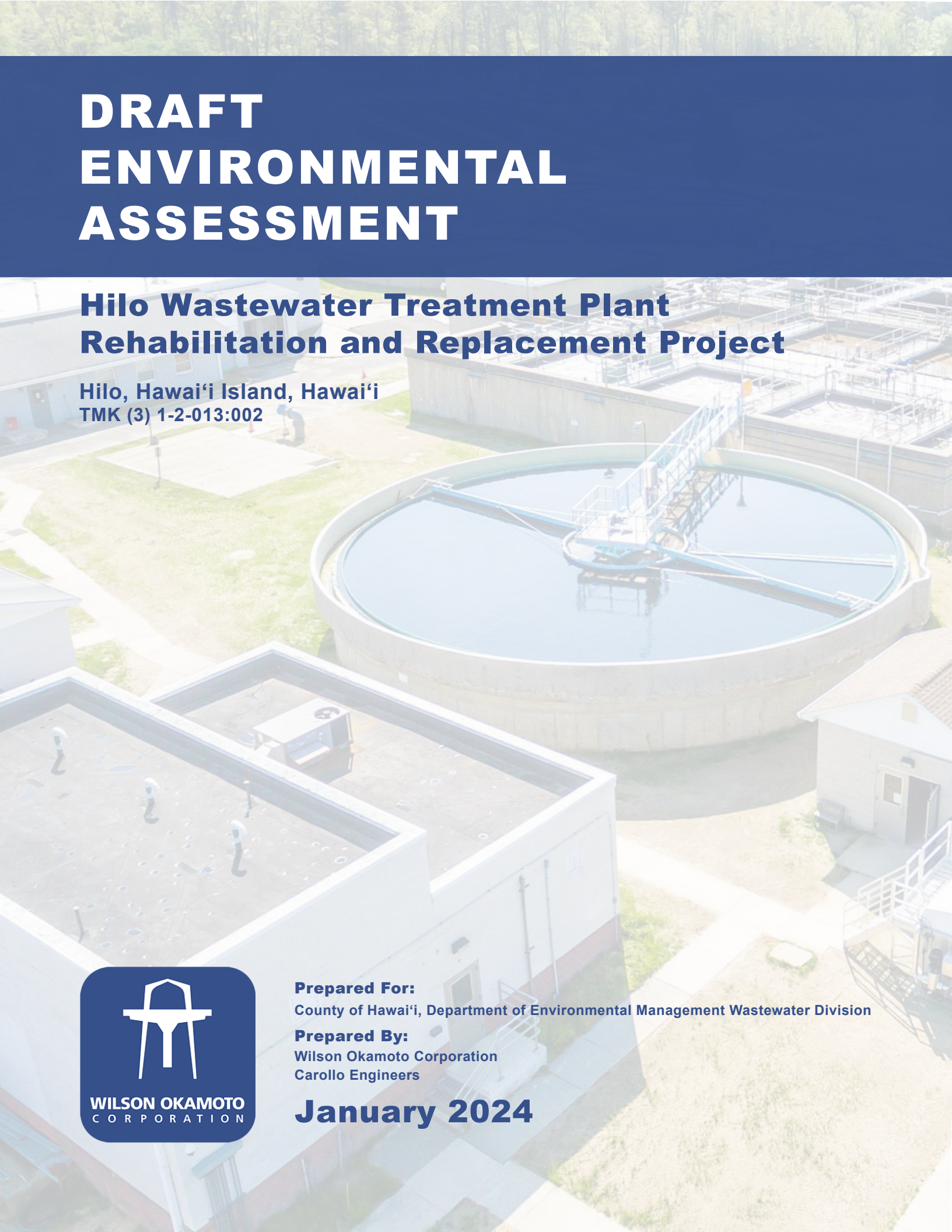
Authorization

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

DRAFT ENVIRONMENTAL ASSESSMENT

Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project

Hilo, Hawai‘i Island, Hawai‘i
TMK (3) 1-2-013:002



WILSON OKAMOTO CORPORATION

Prepared For:
County of Hawai‘i, Department of Environmental Management Wastewater Division

Prepared By:
Wilson Okamoto Corporation
Carollo Engineers

January 2024

DRAFT ENVIRONMENTAL ASSESSMENT

Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project

Hilo, Hawai‘i Island, Hawai‘i
TMKs: (3) 2-1-013:002

Project No.: C150062-53 & C150062-54

Prepared For:

The County of Hawai‘i
Department of Environmental Management (DEM)
East Hawai‘i Office: 345 Kekūanāo‘a St., Suite 41
Hilo, Hawaii 96720

Prepared By:

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

WOC Job No. 10698-02

Under Contract to:

Carollo Engineers
733 Bishop Street, Suite 1610
Honolulu, HI 96813

January 2024

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LIST OF ACRONYMS USED

The following is a list of acronyms and abbreviations used in this Environmental Assessment (EA).

AC	Asphalt Concrete
ACS	American Community Survey
AFNSI	Anticipated Finding of No Significant Impact
ALISH	Agricultural Lands of Importance to the State of Hawai‘i
AV	Abandoned Vehicle
BISM	Big Island Scrap Metal
BLNR	Board of Land and Natural Resources
BMP	Best Management Practices
CO	Carbon Monoxide
CZM	Coastal Management Zone
DBEDT	Department of Business, Economic Development and Tourism
DEA	Draft Environmental Assessment
DEM	County of Hawai‘i Department of Environmental Management
DLNR	Department of Land and Natural Resources
DOE	Department of Education
DOH	State of Hawaii Department of Health
DOT	State of Hawai'i Department of Transportation
DPW	County of Hawai‘i Department of Public Works
DWS	County of Hawai‘i Department of Water Supply
EA	Environmental Assessment
EHRSS	East Hawai‘i Regional Sort Station
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
FEA	Final Environmental Assessment
FEMA	Federal Emergency Management Agency
FIRM	Flood Rate Insurance Map
FONSI	Finding of No Significant Impact
FWS	U. S. Fish and Wildlife Service
GHG	Greenhouse Gas Emissions
H_2S	Hydrogen Sulfide
HAR	Hawai'i Administrative Rules
HB	House Bill
HCC	Hawai‘i County Code
HELCO	Hawaii Electrical Light Company
HRS	Hawai'i Revised Statutes
IPCC	Intergovernmental Panel on Climate Change
ITO	Hilo International Airport
IWS	Individual Wastewater System
KMR	Keaukaha Military Reservation
LSB	Land Study Bureau
LUC	Land Use Commission
LUPAG	Land Use Pattern Allocation Guide
mgd	Million Gallons Per Day

msl	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NPDES	National Pollutant Discharge Elimination System
NOAA	National Oceanic and Atmosphere Administration
NO_2	Nitrogen Dioxide
NRCS	National Resources Conservation Service
O_3	Ozone
OP	State of Hawai‘i Office of Planning and Sustainable Development
Pb	Lead
PM_{10} &PM_2	Particulate Matter
PV	Photovoltaic Solar
rPAE	Papai Series Soils
SF	Square feet
SHPD	State Historic Preservation Division
SLR-XA	Sea level rise exposure area
SMA	Special Management Area
SWMP	Solid Waste Management Permit
SO_2	Sulfur Dioxide
TA	Traffic Assessment
TMK	Tax Map Keys
UIC	Underground Injection Control
USGS	U.S. Geological Survey
VDAP	Vehicle Disposal Assistance Program
WHSL	West Hawai‘i Sanitary Landfill
WWTP	Wastewater Treatment Plant

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PREFACE

Chapter 343, Hawai'i Revised Statues (HRS), as amended, sets forth the applicability requirements for preparation of an environmental assessment. These requirements are found in §343-5(a)(1) which states, except as otherwise provided, an environmental assessment shall be required for actions that: propose the use of state or county lands or the use of state or county funds. This Draft Environmental Assessment – Anticipated Finding of No Significant Impact (DEA-AFNSI) for the Hilo Wastewater Treatment Plant (WWTP) Rehabilitation and Replacement Project has been prepared pursuant to HRS Chapter 343 and Title 11, Chapter 200.1, Hawai'i Administrative Rules (HAR), Department of Health, State of Hawai'i. The purpose of this document is to assess the potential environmental, social, cultural, and economic impacts associated with the construction and operation of the proposed project, described herein as the "Proposed Action," and to disclose the mitigation measures that will be implemented to avoid or minimize adverse impacts.

The Hilo WWTP Rehabilitation and Replacement Project will be constructed using funds provided by the County of Hawai'i and on lands owned by the State of Hawai'i.. As stated above, HRS Chapter 343, as amended, and HAR Title 11, Chapter 200.1 State of Hawai'i Department of Health (DOH), require state and local governmental agencies undertaking projects utilizing state or county lands or funds to consider the potential environmental impacts of a proposed project by preparing environmental review documentation which can be fulfilled by preparing an Environmental Assessment.

The Hilo WWTP Rehabilitation and Replacement Project may also be funded by federal funds through the DOH Clean Water State Revolving Fund (CWSRF) Program, (SRF Project No. C150062-53 & C150062-54) which will require the project to meet Hawai'i CWSRF program requirements. The National Environmental Policy Act (NPEA) of 1969, as amended (42 USC §4321), requires a federal agency proposing to undertake a project to consider the potential environmental impacts of the proposed project. Use of federal funds for a project are among the criteria set forth in NEPA which requires preparation of an environmental assessment under NEPA, procedural requirements of 40 CFR Parts 1500-1508 dated November 29, 1978 (Council on Environmental Quality (CEQ), and 40 CFR Part 6 dated September 19, 2007.

Based on the findings and the assessment of potential impacts from the proposed project, a Finding of No Significant Impact (FONSI) is anticipated. County of Hawai'i – Department of Environmental Management (CoH-DEM) has determined that construction and operation of the proposed project does not warrant the preparation of an Environmental Impact Statement.

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SUMMARY

Project Name:	Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Project Applicant:	County of Hawai'i Department of Environmental Management 345 Kekūanāo'a Street, Suite 41 Hilo, HI 96720
Location:	Hilo, Hawai'i Island, Hawai'i
Tax Map Keys (TMKs):	(3) 2-1-013:002 (por.), approximately 14.9 acres of the 2,407.756-acre parcel
Project Site:	Approximately 14.9 acres
Recorded Fee Owner:	State of Hawai'i
Existing Use:	Existing Wastewater Treatment Plant (WWTP)
State Land Use Classification:	Agricultural
County Zoning Designation:	A-20a (Agricultural)
Flood Hazard Zone:	Zone X
Proposed Action:	The CoH-DEM is proposing to pursue efforts to replace and improve the treatment processes at the WWTP to address identified deficiencies. These replacement facilities and improvement projects may be completed as one single project, or may be phased-in over time, subject to available funding and other factors. The replacement facilities contemplated under this project are to be sited nearby or adjacent to the ones being replaced within the existing developed area of the WWTP and within areas previously cleared adjacent to the plant. The proposed rehabilitated, replacement, and new facilities are needed to ensure continued current operations and to meet future needs at the WWTP. Also, facilities have been identified which are needed to meet current code requirements and to ensure the long-term operation of the plant functions.

In addition, the CoH-DEM is seeking to extend the WWTP's fence line to the edge of the WWTP property boundary on the south, east and north to serve as an additional lay down/staging area and to facilitate WWTP operations moving forward. The extension of the fence line will enclose areas previously disturbed during the original construction of the WWTP. Moreover, the fence relocation is necessary to accommodate the digester gas conditioning system (required as part of the replacement boiler) and location of the new waste gas flare needed to meet current building code setbacks.

Initial improvements originally considered as part of the previously considered Phase 1 project consist of the replacement of critical core functions and facilities at the WWTP. These improvements qualified for exemption from the preparation of an Environmental Assessment, pursuant to the COH-DEM's Comprehensive Exemption list, dated June 25, 2018, for which Environmental Council Concurrence was issued on January 8, 2019. An EA-Exemption declaration for these improvements was issued on February 8, 2023. Although the impacts of these improvements have already been disclosed, pursuant to HRS 343 Requirements, this subject EA process will evaluate and disclose the cumulative impacts of the comprehensive improvements planned for the Hilo WWTP. The CoH-DEM cancelled the Phase 1 improvements bid solicitation based on the relative provisions of HAR 3-122-96(a)(2).

Additional project improvements not addressed under the February 8, 2023 EA-Exemption declaration generally include rehabilitation of the existing primary sedimentation basins; secondary treatment system rehabilitation and improvements; new solids thickening and dewatering facilities; additional sludge digestion capacity; new supervisory control and data acquisition (SCADA) system; and plant-wide site civil, grading, piping, and electrical improvements.

Impacts:

Short-term construction-related impacts to surrounding areas include fugitive dust, noise, and construction-related traffic. Impacts on air quality and noise levels will be mitigated through implementation of best management practices (BMPs) and adherence to federal, state, and county rules and regulations. Traffic impacts will be mitigated through traffic control measures developed during the design phase that will avoid or minimize disruptions to surrounding operations. Short-term construction-related impacts are anticipated to be negligible with mitigation. In the long-term, no significant impacts are anticipated as a result of the construction or operation of the proposed action.

Anticipated Determination: Finding of No Significant Impact (FONSI)

Parties Consulted During Early Consultation:

Federal Agencies

US Army Corps of Engineers, Honolulu District
US Department of Agriculture Natural Resources Conservation Service
US Fish and Wildlife Service
National Oceanic and Atmospheric Administration
US Department of Transportation Federal Aviation Administration

State Agencies

Department of Accounting and General Services
Department of Business, Economic Development & Tourism (DBED&T)
- DBED&T Land Use Commission
- DBED&T Office of Planning and Sustainable Development
- DBED&T State Energy Office

Department of Hawaiian Home Lands (DHHL)
- DHHL – East Hawai'i District Office

Department of Health (DOH)
- DOH – Clean Water Branch
- DOH- Environmental Management Office
- DOH– Hazard Evaluation and Emergency Response
- DOH– Safe Drinking Water Branch
- DOH- Solid and Hazardous Waste Branch
- DOH– Wastewater Branch

Department of Land and Natural Resources (DLNR)
- DLNR State Historic Preservation Division
- DLNR Land Division
- DLNR Office of Conservation and Coastal Lands

Department of Transportation
Office of Hawaiian Affairs
University of Hawai'i

County of Hawai'i

Fire Department
Police Department
Planning Department
Research and Development
Department of Public Works

Department of Parks and Recreation
Department of Water Supply

Elected Officials

State Senator Lorraine R. Inouye, Senate District 1
State Representative Chris Toshiro Todd, House District 3
County Councilmember Susan Keohokapu-Lee Loy, Council District 3
State Representative Richard Onishi, House District 2
County Councilmember Jennifer Kagiwada, Council District 2

Utilities

Hawaiian Telcom
Hawaiian Electric
Hawai'i Gas
Spectrum Hawai'i

Other Interested Parties and Individuals

Environmental Management Commission
Hawai'i State Library
Hilo Public Library
Keaukaha Military Reservation
Keaukaha Community Association
Keaukaha-Pana'ewa Farmers Association
Pana'ewa Hawaiian Homelands Community Association

CHAPTER 1: INTRODUCTION

1. INTRODUCTION

1.1. Background Information

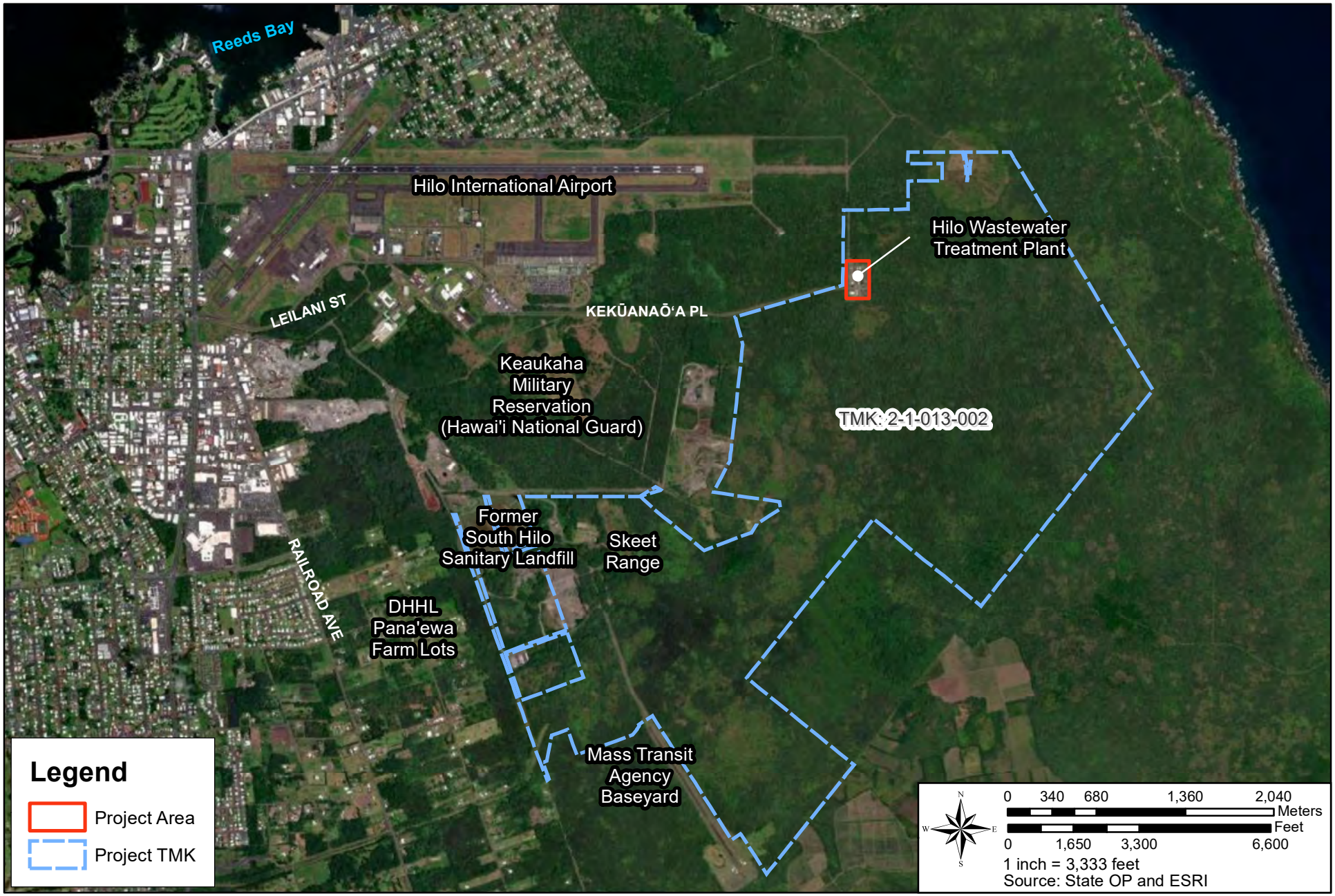
The County of Hawai‘i – Department of Environmental Management (CoH-DEM) is proposing to undertake the construction of new facilities and rehabilitation of existing facilities to improve the treatment processes at the Hilo Wastewater Treatment Plant (WWTP) (herein referred to as the Proposed Action). The Proposed Action will be situated in Hilo on the island of Hawai‘i at 150 Kekūanaō‘a Place (herein referred to as the Project Site). Figure 1-1 shows the project location map.

The environmental assessment (EA) process commenced on September 22, 2023, when the Early Consultation Package was mailed out to the various Federal, State, City and County, government officials, and other stakeholders as described in Section 7.1 of this EA. The comments received on the Early Consultation, as well as the discussions had with the CoH-DEM regarding the Proposed Action have informed the scope of this EA document.

This Draft EA assesses the anticipated environmental effects that the Proposed Action may have on a host of environmental resources. Specifically, this effort encompasses an evaluation of primary, secondary, and cumulative effects, in alignment with Chapter 343, Hawai‘i Revised Statutes (HRS) and Title 11, Chapter 200.1, Hawai‘i Administrative Rules (HAR). The EA also identifies feasible means of avoiding or substantially lessening potential significant adverse impacts and evaluates a range of reasonable alternatives to the Proposed Action, including the required No Action alternative. As noted in the Preface of this document, this EA is being prepared as an “applicant action.”

In summary, this EA serves as a disclosure and informational document intended to identify the anticipated environmental effects of implementing the Proposed Action and evaluate the potential of their significance. This EA has been prepared for Proposed Action for the following purposes:

- To inform and provide the general public, the local community, Federal, State, and County of Hawaii agencies, as well as any other interested stakeholders, an opportunity to comment on the Proposed Action and its environmental effects, feasible measures to mitigate those effects, as well as the reasonable and feasible alternatives;
- To enable the Applicant to consider the potential environmental consequences of implementing the Proposed Action;
- To enable appropriate agencies to consider the environmental consequences of the Proposed Action for which they have a role in approving or issuing permits; and



WILSON OKAMOTO CORPORATION

FIGURE 1-1

PROJECT LOCATION

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT

- To satisfy Chapter 343, HRS and Chapter 200.1, HAR requirements.

1.2. Project Location and Surrounding Uses

The existing Hilo WWTP was constructed in the early 1990's and has been fully operational since it was commissioned into duty. The Hilo WWTP is operated by the COH-DEM and occupies an area of approximately 14.9 acres within Tax Map Key (TMK): 2-1-013:002, an approximate 2,407.756-acre parcel, owned by the State of Hawai'i. During construction of the WWTP, the entire 14.9- acre project site was cleared of vegetation. However, the improved area of the WWTP covers about 8.4 acres of the Project Site. The adjacent areas immediately surrounding existing plant facilities lie to the south, east and north of the 8.4- acre developed area. These previously cleared areas have largely remained undeveloped and have served as laydown and staging areas for WWTP maintenance and operations (See Figure 1-1).

The Project Site is located within a relatively undeveloped area of South Hilo about 4,000 feet (about 0.75 mile) southeast of Runway 26 at the Hilo International Airport. Access to the site is provided via Kekuanaoa Place, which connects to Airport Road, a major access artery of the nearby Hilo International Airport.

The nearest residential area lies across the runway, approximately one (1) mile to the north of the WWTP. The intervening vegetation and the distance provide a visual buffer between the residential area to the WWTP. Other surrounding uses in the general vicinity include the Hilo International Airport and the Keaukaha Military Reservation (KMR) of the Hawai'i National Guard to the north and east; the County of Hawai'i Trap and Skeet Range to the southeast; the Pana'ewa Drag Strip, the County of Hawai'i Mass Transit Agency base yard, and the Department of Hawaiian Homelands Pana'ewa Farm lots and residences to the south; and various commercial/industrial properties to the West and South.

CHAPTER 2: PROPOSED ACTION

2. PROPOSED ACTION

2.1. Purpose and Need

The Hilo WWTP serves the sewered areas of the Hilo community. As noted previously, the WWTP was constructed in the early 1990's and was originally designed to provide secondary treatment of wastewater for an average dry weather and peak wet weather wastewater flow of 5.0 and 13.0 million gallons per day (mgd), respectively. Current dry weather flows are approximately 2.7 -2.8 mgd.

Recent condition assessments and a resulting master plan have identified a range of critical system deficiencies within the WWTP which threaten reliable treatment and the ability to provide a safe working environment for operations and maintenance staff. These deficiencies include severe concrete deterioration, malfunctioning equipment, and safety hazards. In addition, influent five-day biochemical oxygen demand (BOD) and total suspended solids (TSS) concentrations are greater than those which served as the basis of the original plant design. Moreover, the existing condition of the facility poses a threat to the safe and normalized operations of the WWTP. As the Hilo WWTP is the only wastewater facility that serves the region, it is considered to be critical infrastructure. Should the facility experience some form of facility/equipment failure, cessation of WWTP operations could constitute a risk to public health.

In response to these condition assessments, the CoH-DEM is proposing to undertake the rehabilitation and replacement of critical facilities at the WWTP. As a result, the Proposed Action will improve plant facilities and restore the original capacity of 5.0 mgd average dry weather flow.

CANCELLATION OF PROPOSED IMPROVEMENTS

Previously, the CoH-DEM intended to implement the needed improvements in two phases. At that time, all Phase 1 improvements qualified for exemption from the preparation of an Environmental Assessment, pursuant to the CoH-DEM's Comprehensive Exemption list, dated June 25, 2018, for which Environmental Council Concurrence was issued on January 8, 2019. An EA-Exemption declaration for these Phase 1 improvements was issued by the CoH-DEM on February 8, 2023. However, after issuance of the EA Exemption, on June 14, 2023, the CoH-DEM cancelled the Phase 1 improvements bid solicitation, based on relevant portions of HAR § 3-122-96(a)(2), a cancellation is justified when:

(1) Prices exceed available funds and it would not be appropriate to adjust quantities to come within available funds; and (2) A determination by the chief procurement officer or a designee that a cancellation is in the public interest.

Although the impacts of Phase 1 improvements have already been disclosed, pursuant to Chapter 343 HRS requirements, this subject EA process will evaluate and disclose the

cumulative impacts of all comprehensive improvements planned for the Hilo WWTP (See Figure 2-1).

2.2. Proposed Project Description

The Hilo WWTP is operated by the CoH-DEM and as such, is considered a “public use” as defined by Hawai'i County Code § 25-1-5, as a use conducted by or a structure or building owned or managed by the federal government, the State of Hawai‘i, or the County to fulfill a governmental function, activity, or service for public benefit and in accordance with public policy.

As noted above, in response to the recent condition assessments, the CoH-DEM is proposing to pursue efforts to rehabilitate and replace facilities to improve the treatment processes at the WWTP to address identified deficiencies. These rehabilitation and replacement facilities projects may be completed as one single project, or may be phased-in over time, subject to available funding and other factors.

The replacement facilities are to be sited nearby or adjacent to the ones being replaced within the existing developed area of the WWTP and within areas previously cleared or on lands adjacent to the plant. The proposed rehabilitated and replaced, facilities are needed to ensure continued current operations and to meet future needs at the WWTP. Also, facilities have been identified which are needed to meet current code requirements and to ensure the long-term operation of the plant functions.

In addition, the CoH-DEM intends to extend the WWTP’s fence line to the edge of the WWTP property boundary on the south, east and north to serve as an additional lay down/staging area and to facilitate WWTP operations moving forward. The extension of the fence line will enclose areas previously disturbed during the original construction of the WWTP. Moreover, the fence relocation is necessary to accommodate the digester gas conditioning system (required as part of the replacement boiler) and location of the new waste gas flare needed to meet current building code setbacks.

Initial improvements originally considered as part of the previously considered Phase 1 project consist of the replacement of critical core functions and facilities at the WWTP, and include the following:

- Replacement of the headworks, including associated improvements (septage receiving facility, headworks electrical building, and the odor control system).
- Replacement of two anaerobic digesters, including associated improvements (sludge blending tanks with odor control facilities, digester control building, digester gas conditioning system, and waste gas flare.
- Demolition of the existing headworks upon completion of the replacement headworks facility.

These improvements qualified for exemption from the preparation of an Environmental Assessment, pursuant to the COH-DEM’s Comprehensive Exemption list, dated June 25, 2018, for which Environmental Council Concurrence was issued on January 8, 2019. An EA-Exemption declaration for these improvements was issued on February 8, 2023. Although the

impacts of these improvements have already been disclosed, pursuant to HRS 343 Requirements, this subject EA process will evaluate and disclose the cumulative impacts of the comprehensive improvements planned for the Hilo WWTP.

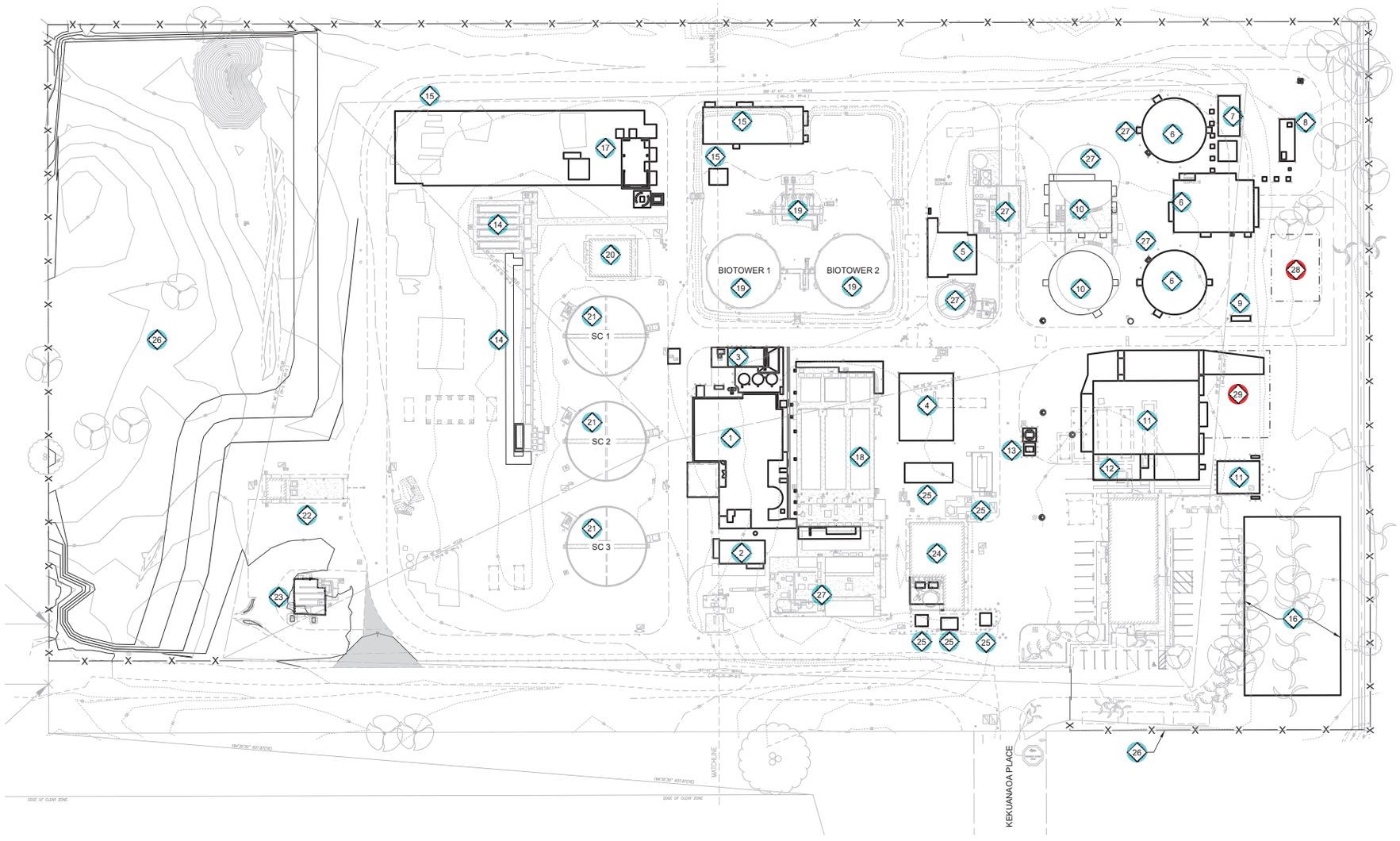
Additional project improvements not addressed under the February 8, 2023 EA-Exemption declaration generally include rehabilitation of the existing primary sedimentation basins; secondary treatment system rehabilitation and improvements; new solids thickening and dewatering facilities; additional sludge digestion capacity; new supervisory control and data acquisition (SCADA) system; and plant-wide site civil, grading, piping, and electrical improvements; including, but not necessarily limited to the following:

<u>New facilities:</u>

- Third anaerobic digester and associated digester control building;
- Solids handling building including thickening and dewatering facilities;
- Construction/installation of a supervisory control and data acquisition system (SCADA) to improve/monitor plant operations and a related control room to house the monitoring equipment;
- Below grade return flow pump station;
- New secondary treatment facilities including, but not limited to an additional solids contactor channel or the construction of a conventional activated sludge (CAS) system consisting of new bioreactors and blower building, a waste sludge pump station, alkalinity feed system, and additional demolition;
- Warehouse building to house critical electrical and mechanical equipment and various small parts. The warehouse is also anticipated to house personnel, provide general office space, and may be used for repairs and other miscellaneous operations as a flex space; and
- Snail removal facility to remove snails from the various treatment processes (not required CAS option).

<u>Rehabilitation projects for existing facilities including:</u>

- Primary sedimentation tanks
- Primary facilities building
- Biotower pump station
- Biotowers (not required with the CAS option)
- Solids contactor and channel (not required with the CAS option)
- Secondary facilities building
- Secondary clarifiers
- Chlorination building
- Effluent disinfection monitoring systems
- Electrical system upgrades including exterior lighting and standby power improvements
- Site civil and grading improvements
- Demolition of certain facilities that are no longer operational



LOCATION	FACILITY NAME
	PROPOSED WWTP IMPROVEMENTS
1	NEW HEADWORKS FACILTY
2	NEW HEADWORKS ELECTRICAL BUILDING
3	NEW SEPTAGE RECEIVING FACILITY
4	NEW HEADWORKS ODOR CONTROL FACILITY
5	NEW SLUDGE BLENDING SYSTEM
6	NEW ANAEROBIC DIGESTER 1 & 2 AND NEW DIGESTER CONTROL BUILDING 1
7	NEW DIGESTER GAS CONDITIONING SYSTEM
8	NEW FLARE
9	NEW PROPANE TANK
10	NEW ANAEROBIC DIGESTER 3 AND DIGESTER CONTROL BUILDING 2
11	NEW SOLIDS HANDLING BUILDING AND ODOR CONTROL
12	NEW SCADA SYSTEM AND SCADA CONTROL ROOM
13	NEW RETURN FLOW PUMP STATION
14	NEW SOLIDS CONTACT CHANNEL & EXISTING SOLIDS CONTACTOR AND CHANNEL REHABILITATION (NOT REQUIRED WITH CAS OPTION)
15	NEW CAS SYSTEM OPTION
16	NEW WAREHOUSE BUILDING
17	NEW SNAIL REMOVAL TRAP (NOT REQUIRED WITH CAS OPTION)
18	EXISTING PRIMARY SEDIMENTATION TANKS REHABILITATION
19	EXISTING BIOTOWERS (TRICKLING FILTERS) AND BIOTOWER PUMP STATION REHABILITATION (NOT REQUIRED WITH CAS OPTION)
20	EXISTING SECONDARY FACILITIES BUILDING REHABILITATION
21	EXISTING SECONDARY CLARIFIERS REHABILITATION
22	EXISTING CHLORINATION BUILDING REHABILITATION
23	EXISTING EFFLUENT DISINFECTION AND DISCHARGE STRUCTURE REHABILITATION
24	EXISTING PRIMARY FACILITIES BUILDING REHABILITATION
25	PLANT-WIDE ELECTRICAL IMPROVEMENTS
26	SITE CIVIL IMPROVEMENTS
27	DEMOLITION OF EXISTING FACILITIES
	FUTURE IMPROVEMENTS
28	FUTURE COGENERATION FACILITY
29	FUTURE BIOSOLIDS DRYER

0 25' 50' 100'

SCALE: 1" = 50'

LEGEND:

PHASE 1

PHASE 2

FUTURE

EXISTING

FIGURE 2-1:

HILO WASTEWATER TREATMENT SITE PLAN

carollo

Long Range Improvements*:

- New cogeneration facility
- Biosolids dryer

(*) These facilities would enhance plant operations without adding additional treatment capacity.

2.2.1 New Anaerobic Digester 3 and Digester Control Building

A third, new 50-foot diameter fixed-cover, anaerobic digester tank will be added to provide additional capacity for solids processing and operations and maintenance redundancy. Digester 3 will be located east of the new solids handling building. The new digester will be about 23 feet above the existing grade, or approximately the same height as the existing facilities.

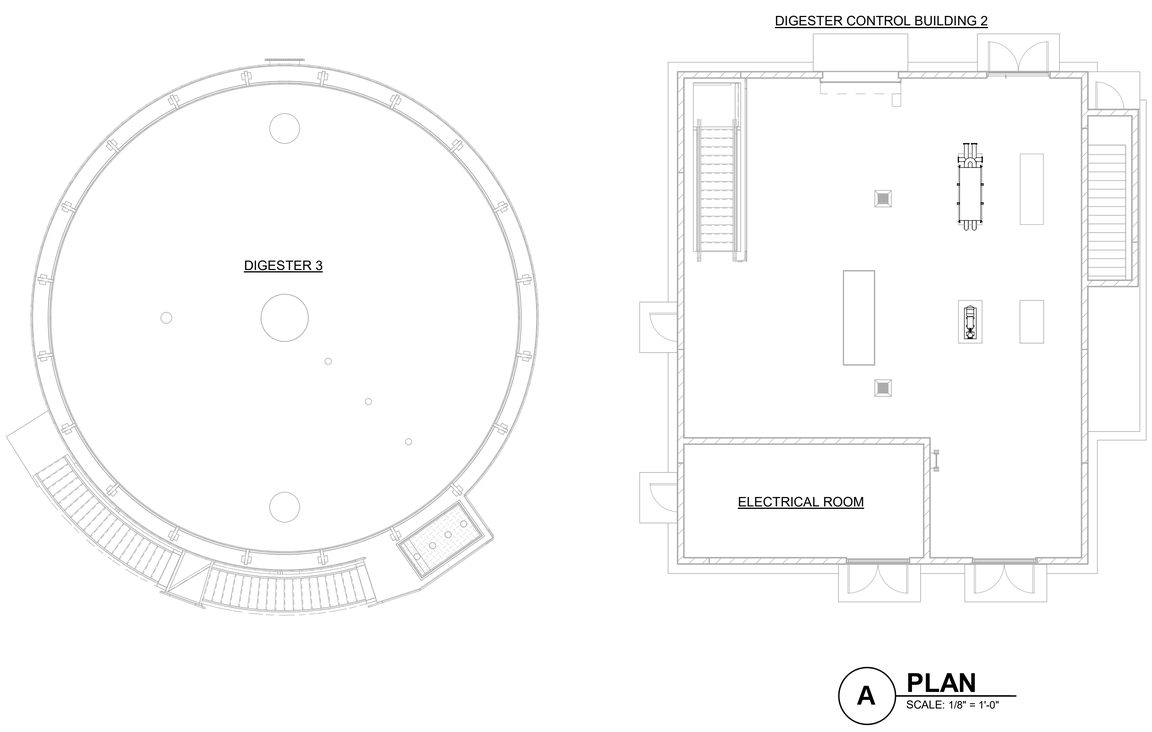
A new digester control building will also be added to house pump mixing, sludge heating recirculation, heat loop recirculation, and other miscellaneous equipment. The new digester control building and Digester 3 facilities are shown on Figures 2-2 through 2-5 and include:

- Addition of a third, new 50-foot diameter fixed cover, anaerobic digester.
- New digester control building housing required system mechanical equipment, electrical room, and monorail.

2.2.2 New Solids Handling Building

A new, solids handling building housing sludge thickening and solids dewatering facilities will be constructed to replace the existing dissolved air flotation thickening process and dewatering centrifuges. The new multi-story building will be located east of the existing administration building with a footprint of about 7,600 square feet, and approximately 53 feet above the existing grade, and. The new solids handling building includes the following facilities:

- Sludge Thickening – Three (3) new rotary drum thickeners for co-thickening primary sludge and waste activated sludge (WAS), associated emulsion polymer system, thickened sludge pumps, and auxiliary equipment.
- Biosolids Dewatering – Two (2) new dewatering screw presses or centrifuges (with provisions for a third in the future), associated emulsion polymer system, centrate piping, and cake conveyance to cake storage and truck loading bay.
- Cake storage and truck loading bay for dewatered cake storage and hauling.
- Electrical and control rooms to power and control new thickening and dewatering systems.



A **PLAN**
SCALE: 1/8" = 1'-0"

FIGURE 2-2
DIGESTION AREA
(PHASE 2)
COUNTY OF HAWAII

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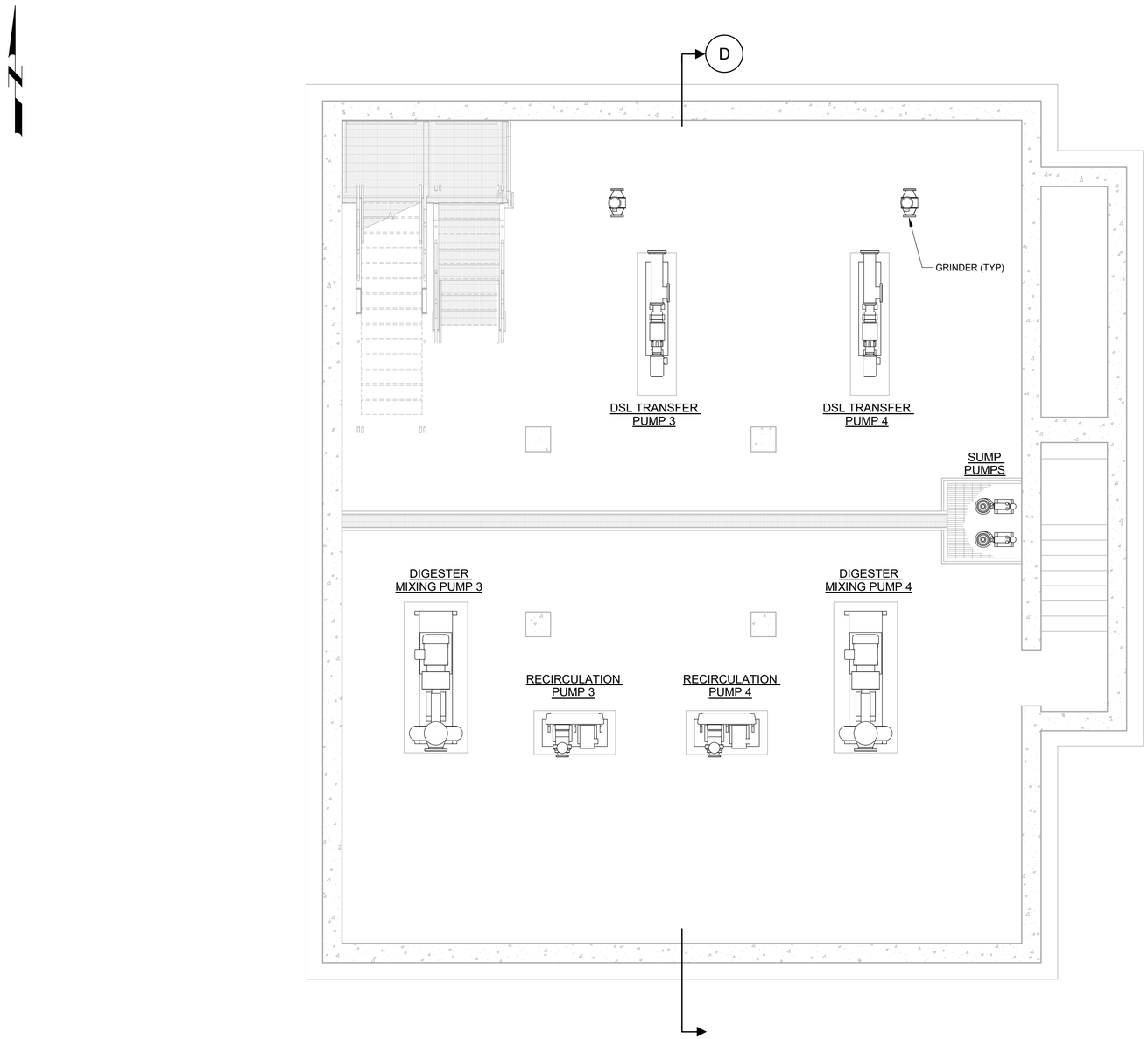

B / - ENLARGED PLAN
SCALE: 1/4" = 1'-0"

FIGURE 2-3
DIGESTER CONTROL BUILDING 2
BASEMENT PLAN
COUNTY OF HAWAII

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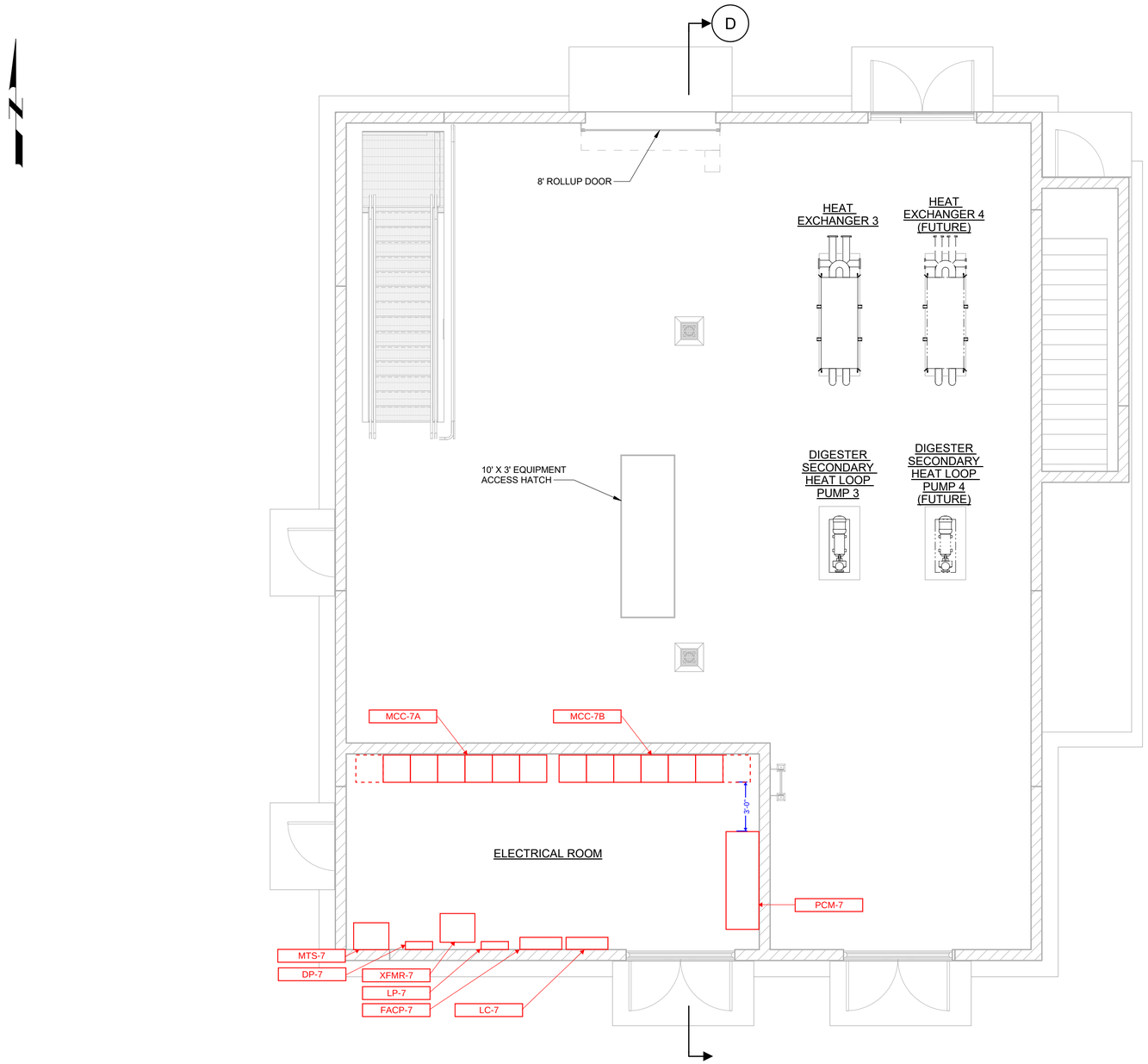

C / - **ENLARGED PLAN**

SCALE: 1/4" = 1'-0"

FIGURE 2-4

DIGESTER CONTROL BUILDING 2 GROUND PLAN

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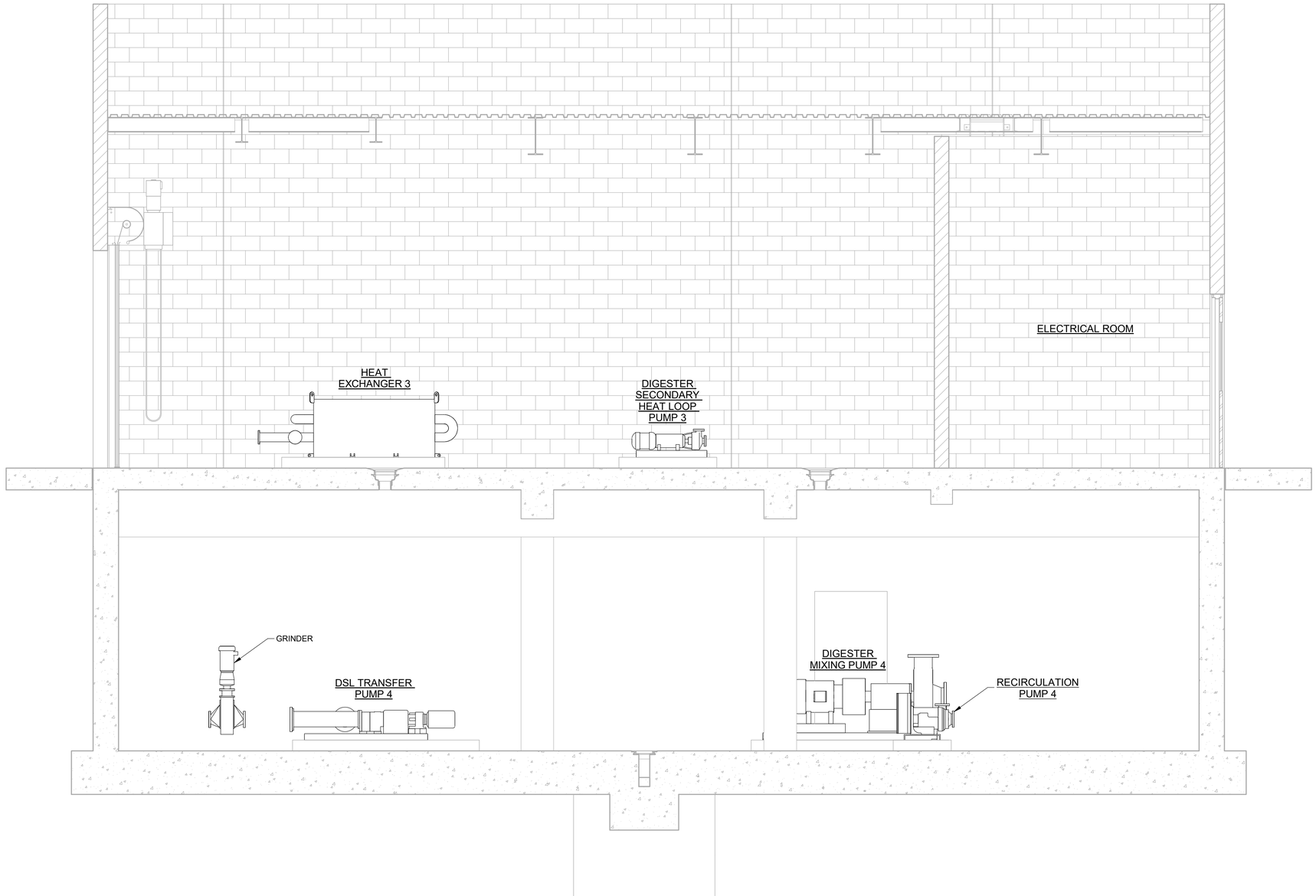

D
-
SECTION
SCALE: 3/8" = 1'-0"

FIGURE 2-5
DIGESTER CONTROL BUILDING 2 SECTION
COUNTY OF HAWAII

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- Bridge crane for equipment removal and maintenance.
- Odor control consisting of extraction of foul air from thickening and dewatering equipment, conveyors, storage hopper, and truck loading bay followed by two-stage biological/carbon scrubbers. The odor control system is to be located outside of the building.
- Heating, ventilation, and air conditioning (HVAC) equipment for the building. The process area will have mechanical supply and exhaust fans to provide six air changes per hour to declassify the building space. For the electrical room, the space will be conditioned with air conditioning units.

The solids handing building is shown on Figures 2-6 through 2-9.

2.2.3 New SCADA System and SCADA Control Room Building

A new supervisory control and data acquisition (SCADA) system will be implemented to modernize plant-wide controls. Vendor supplied PLC-based control systems, new switchgear, and motor control centers (MCCs) will be integrated into the plant-wide SCADA system via ethernet connectivity.

A new SCADA control room building will be constructed adjacent to the new solids handling building. The facility will be about 1,700 square feet to house a server room, control room with workstations, restroom, staff breakroom, and a training/conference room. The new SCADA room layout is shown in Figure 2-10.

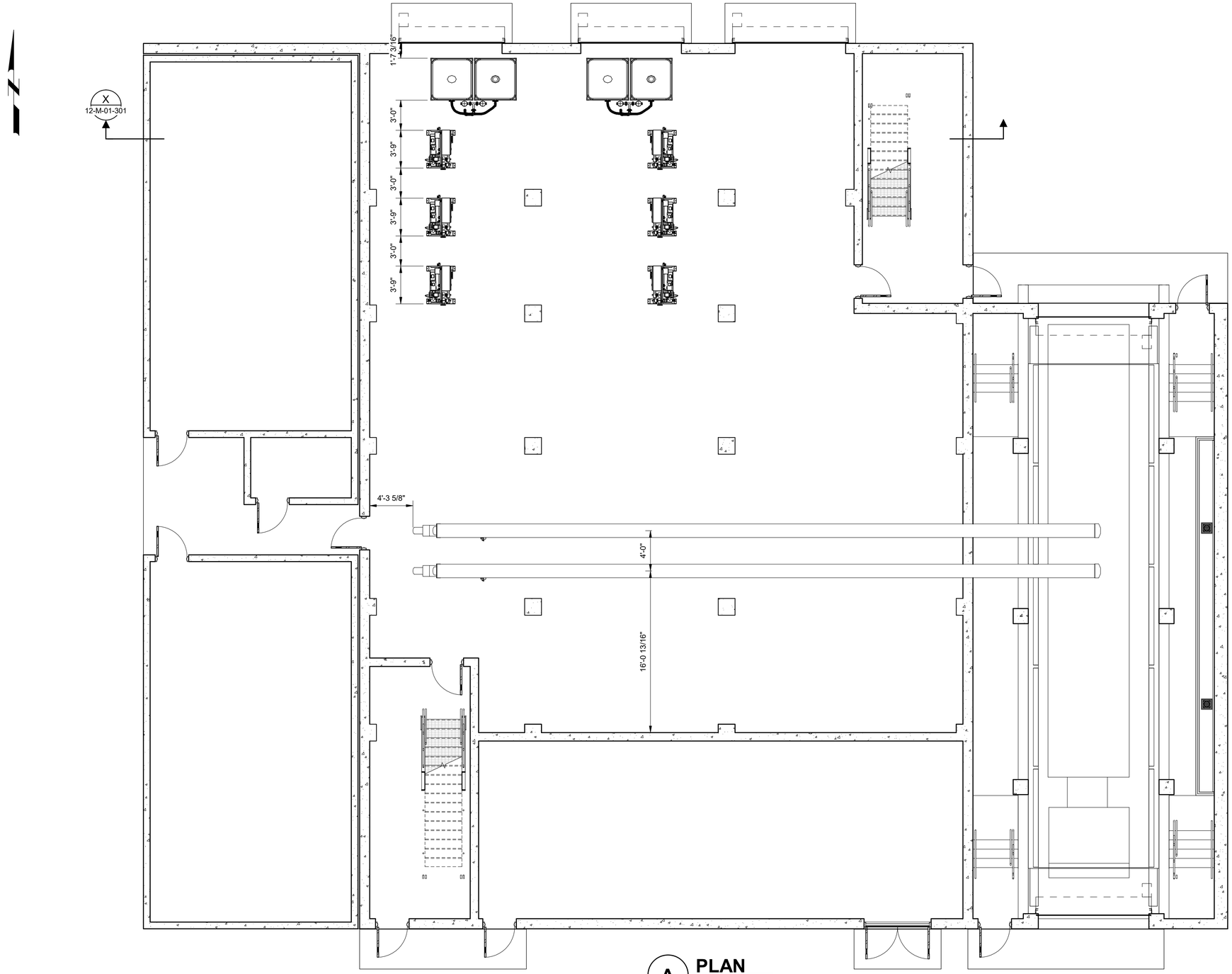
2.2.4 New Return Flow Pump Station

The existing return flow pump station is deteriorating and is reaching the end of its useful life. A new return flow pump station will collect miscellaneous sanitary and process drainage flows and convey them to the headworks via an 8-inch force main. The new pump station will be below ground and located north of the new solids handling building. The new return flow pump station is shown on Figure 2-11 and includes:

- Wet well with two (2) submersible return flow pumps and associated piping and valves;
- New yard piping to direct flow to and from the pump station, and
- Ventilation and odor control equipment.

2.2.5 New Solids Contact Channel -Existing Solids Contactor and Channel Rehabilitation

Rehabilitation of the existing solids contactor, addition of a second solids contact channel, and upgrades to the existing secondary facilities building are required to accommodate BOD concentrations associated with the 5 mgd design condition and increase the reliability of the secondary treatment system. The function of the solids contactor and channel are to flocculate biotower effluent solids and provide for additional soluble BOD removal. The new solids contact channel will be about 200 feet long, 6 feet wide, and 10 deep. The channel will be constructed of concrete and will not be covered. The new channel is shown on Figure 2-12 and Figure 2-13



A **PLAN**
SCALE: 3/16" = 1'-0"

FIGURE 2-6

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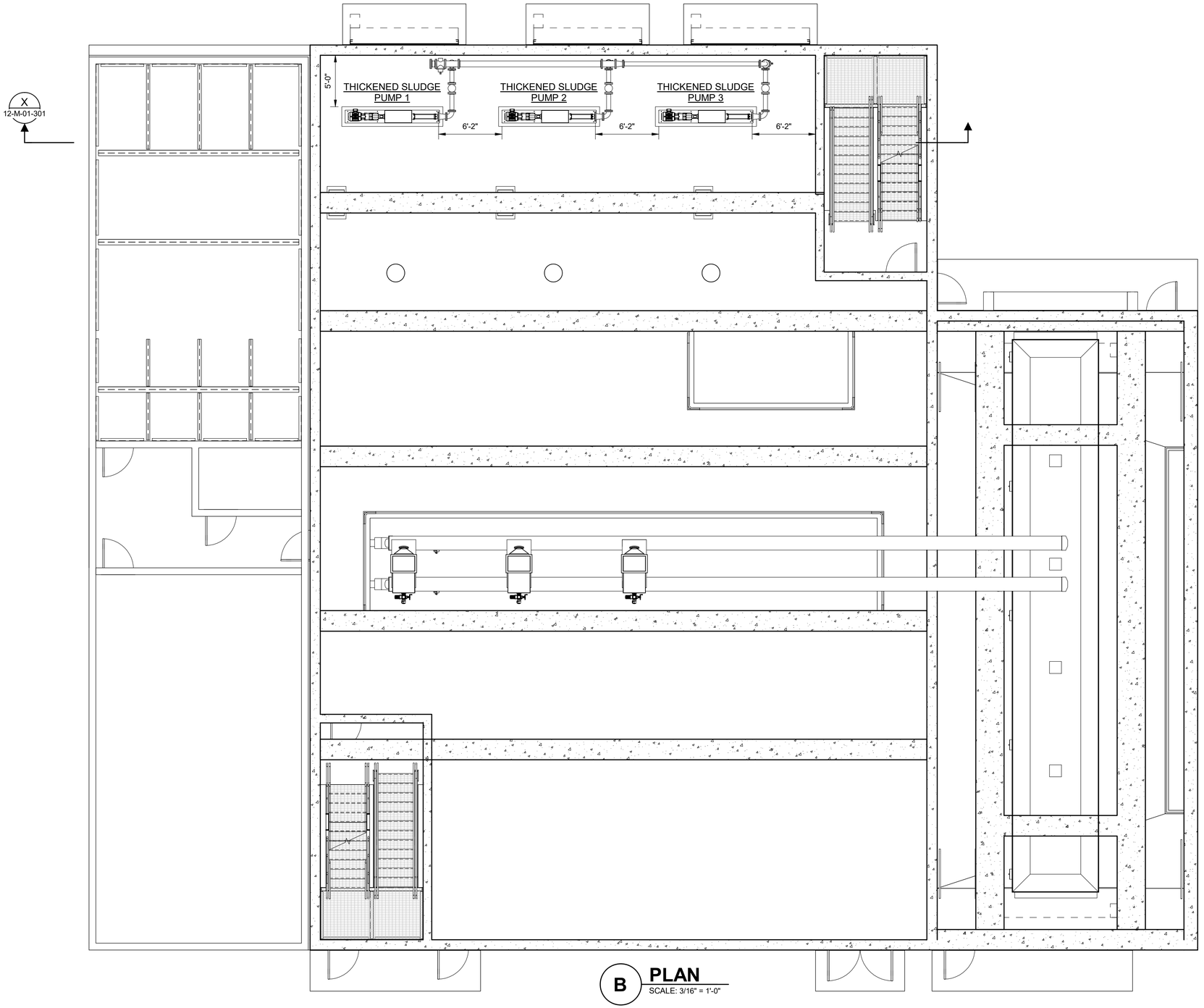
COUNTY OF HAWAII
HILO WWTP REHABILITATION AND REPLACEMENT PROJECT - PHASE 2
MECHANICAL
SOLIDS HANDLING BUILDING
BOTTOM PLAN

JOB NO. 201400
DRAWING NO. 12-M-01-101
SHEET NO. OF

PLOT DATE: 4/20/2023 5:06:05 PM

FILE NAME: R:\d1361566\201400_12M0801-SOLIDS HANDLING BUILDING.rvt



B **PLAN**
SCALE: 3/16" = 1'-0"

FIGURE 2-7

REV	DATE	BY	DESCRIPTION
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MECHANICAL
SOLIDS HANDLING BUILDING
INTERMEDIATE PLAN

JOB NO. 201400
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OF

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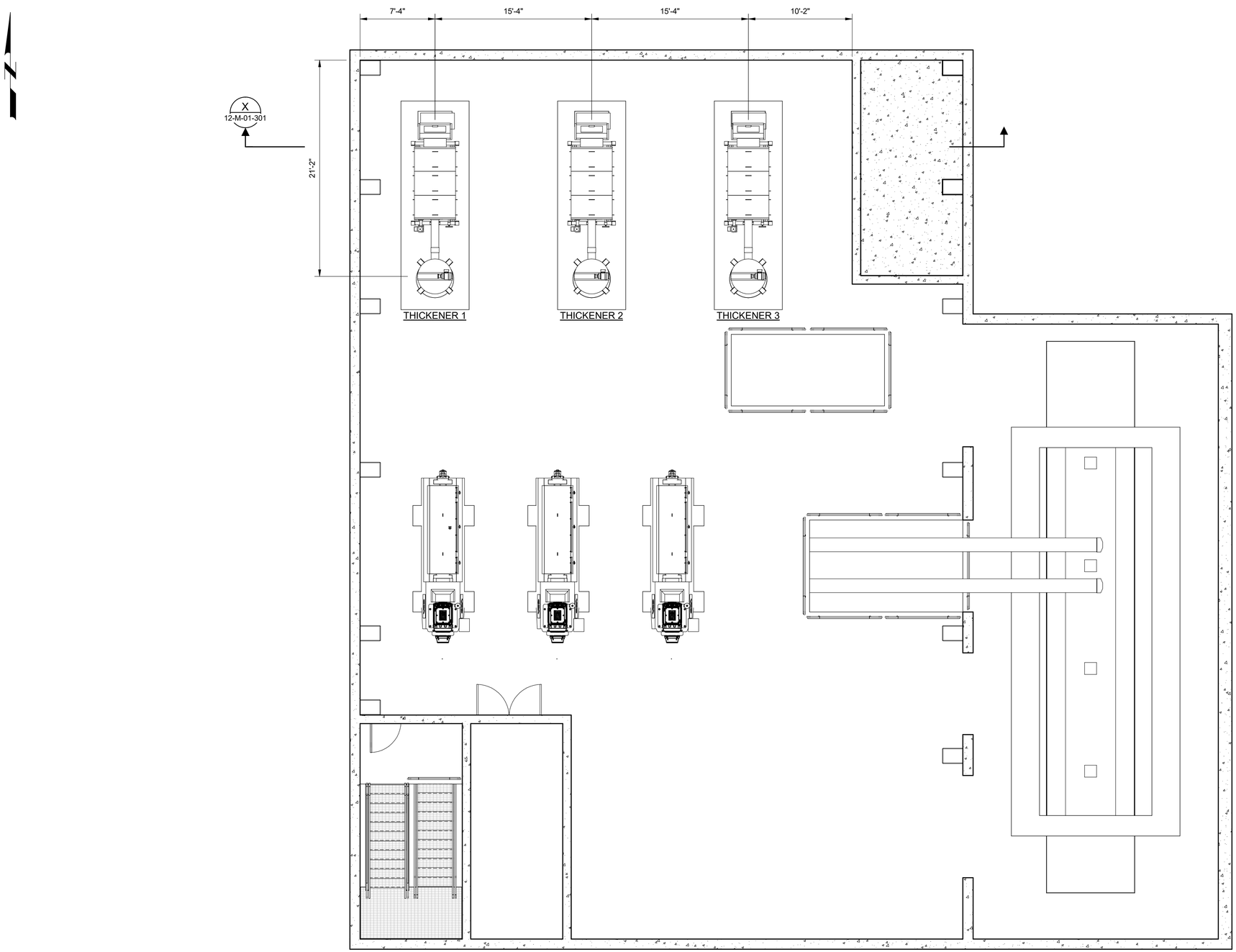

C **PLAN**
SCALE: 3/16" = 1'-0"

FIGURE 2-8

REV	DATE	BY	DESCRIPTION
			PROGRESS TO 50% SUBMITTAL NOT FOR CONSTRUCTION

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DATE XXX 2022

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HILO WWTP REHABILITATION AND REPLACEMENT PROJECT - PHASE 2

MECHANICAL
SOLIDS HANDLING BUILDING
TOP PLAN

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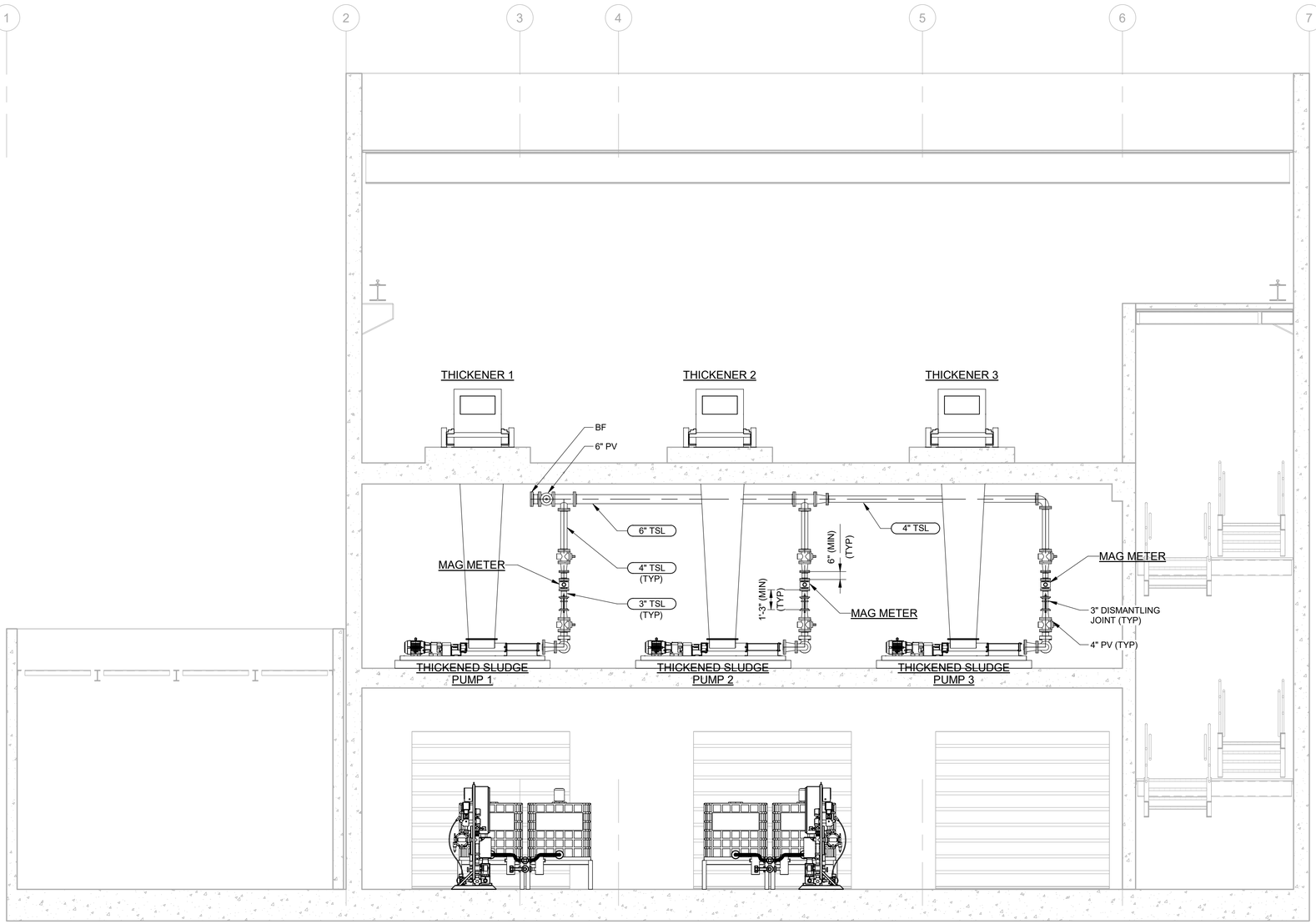
DRAWING NO. 12-M-01-103
SHEET NO. OF

PLOT DATE: 4/20/2023 5:06:09 PM

FILE NAME: R:\d1361566\201400_12M0801-SOLIDS HANDLING BUILDING.rvt



X 12-M-01-101 **SECTION**
SCALE: 1/4" = 1'-0"

FIGURE 2-9

REV	DATE	BY	DESCRIPTION
			PROGRESS TO 50% SUBMITTAL NOT FOR CONSTRUCTION

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MECHANICAL
SOLIDS HANDLING BUILDING SECTIONS

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SHEET NO.
OF

PLOT DATE: 4/20/2023 5:06:12 PM
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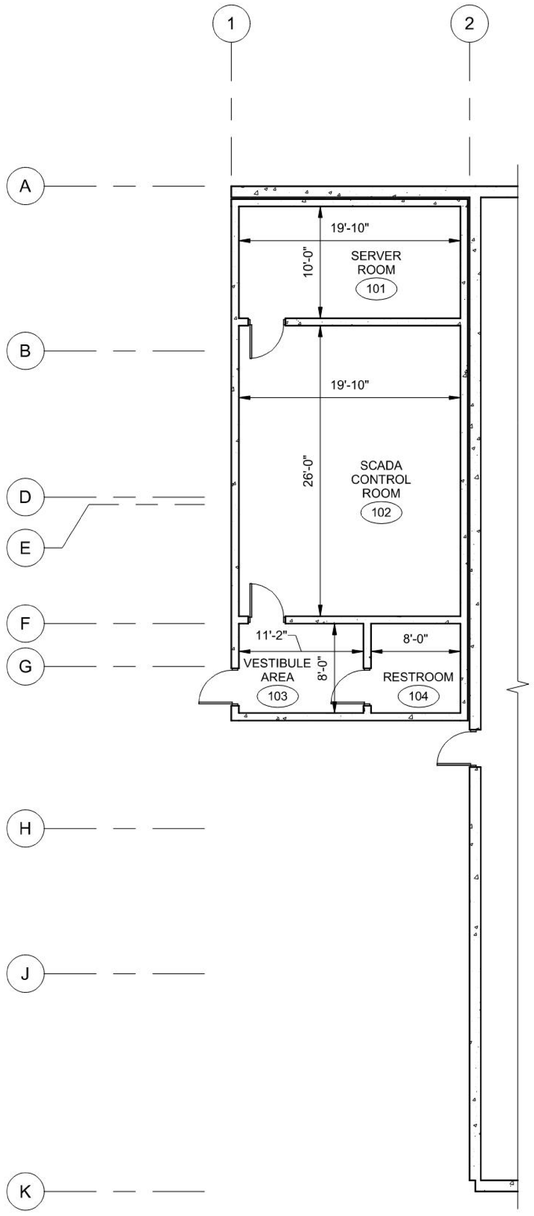
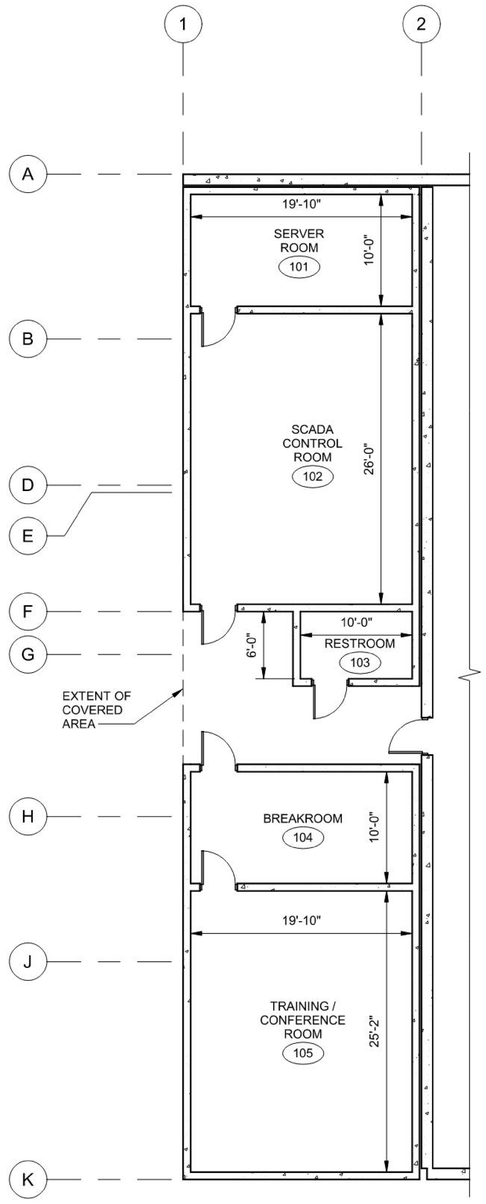


OPTION 1

A PLAN

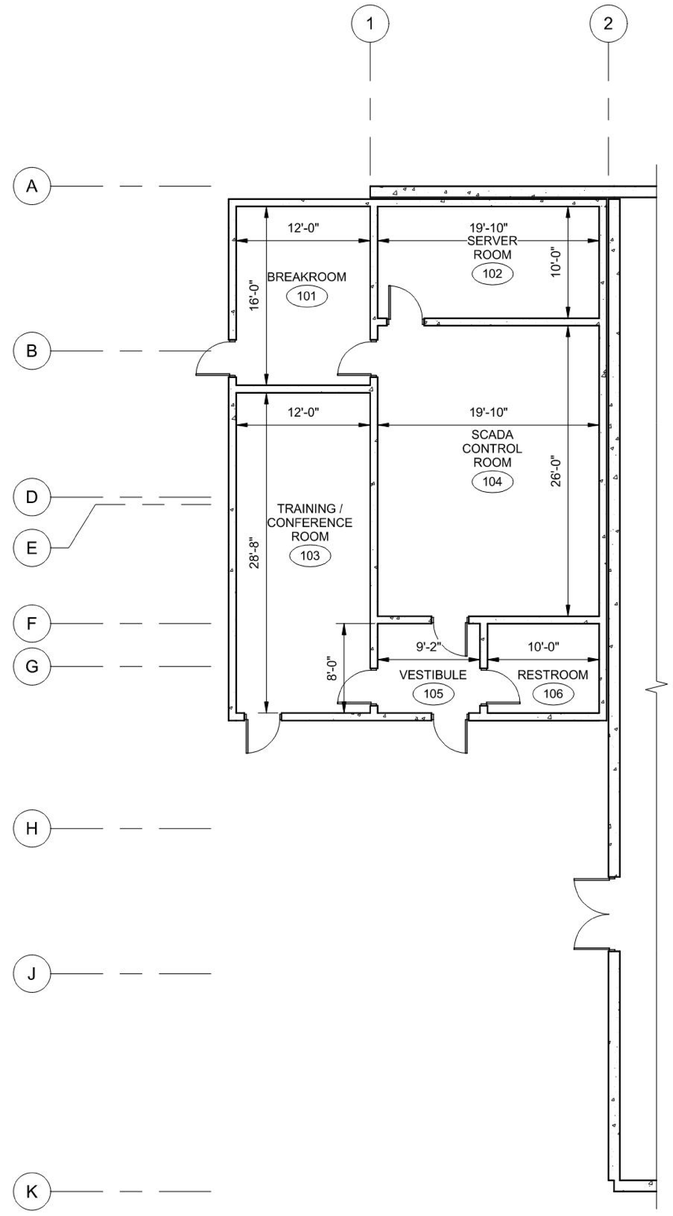
SCALE: 1/8" = 1'-0"



OPTION 2

B PLAN

SCALE: 1/8" = 1'-0"



OPTION 3

C PLAN

SCALE: 1/8" = 1'-0"

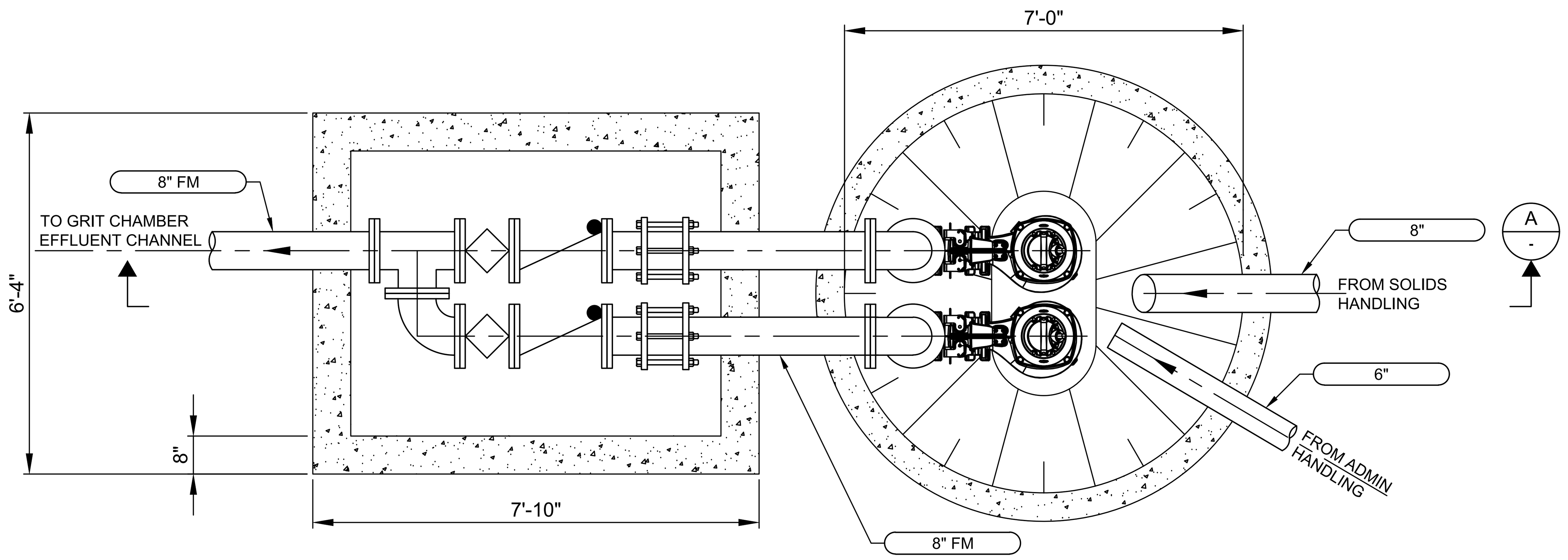
FIGURE 2-10
SCADA Room

GENERAL NOTES:

1. PLACE TEXT
2. PLACE TEXT
3. PLACE TEXT

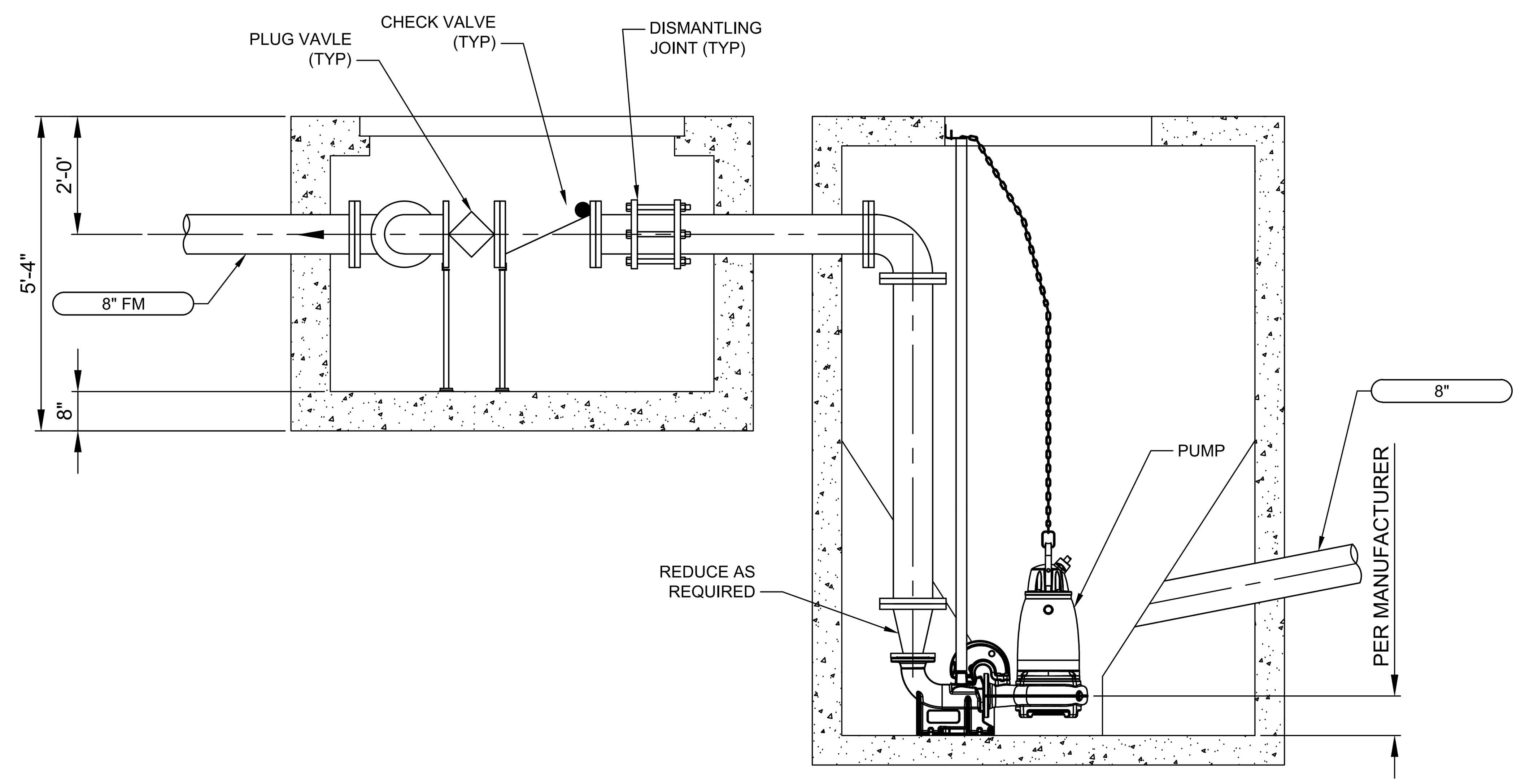
KEY NOTES:

1. PLACE TEXT
2. PLACE TEXT
3. PLACE TEXT



A PLAN

SCALE: 1/2" = 1'-0"
FILE: 201400_16M0101



SECTION A

SCALE: 1/2" = 1'-0"

FIGURE 2-11

REV	DATE	BY	DESCRIPTION
			PROGRESS TO PRELIM SUBMITTAL NOT FOR CONSTRUCTION

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MECHANICAL
RETURN FLOW PUMP STATION

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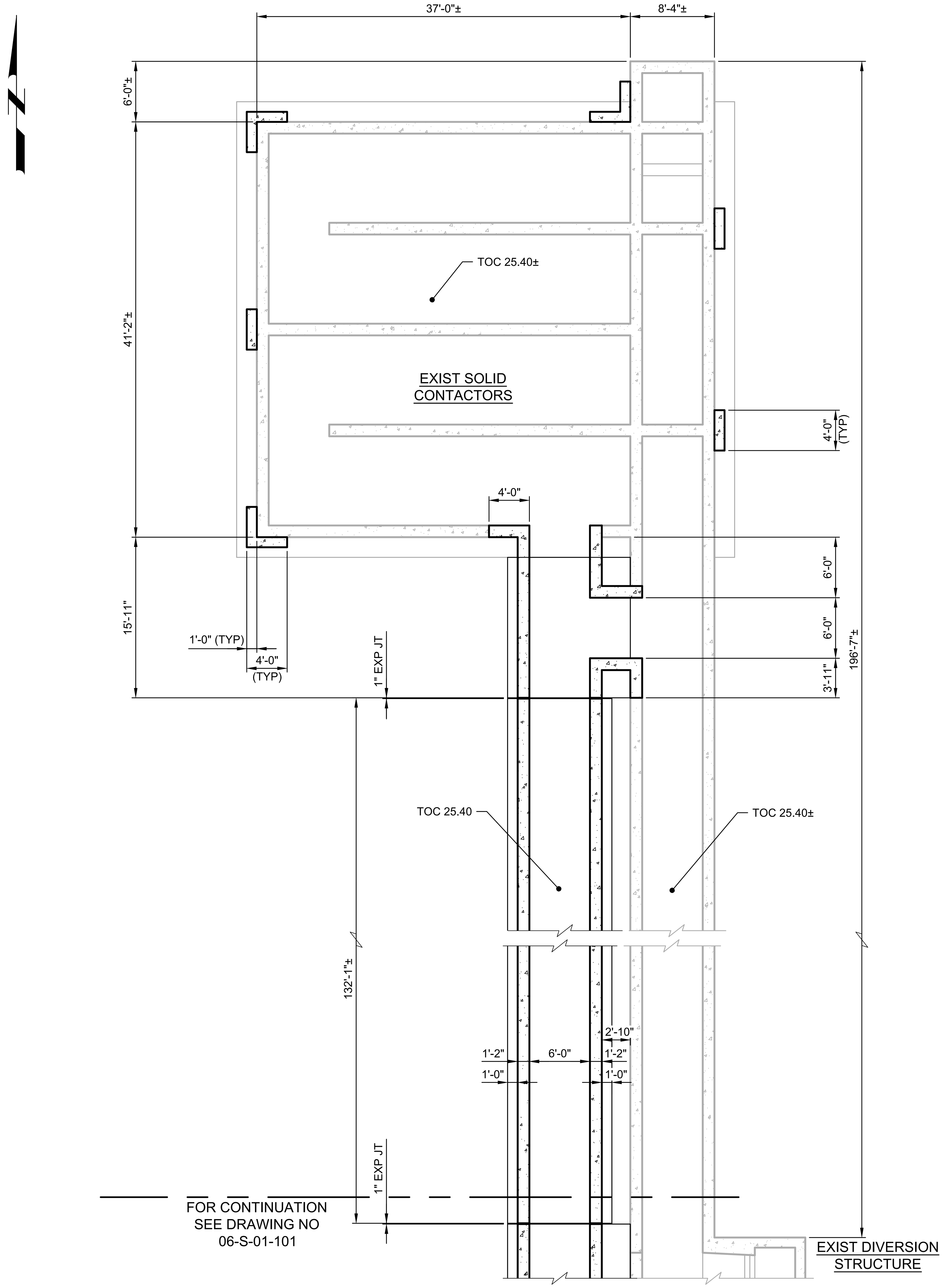
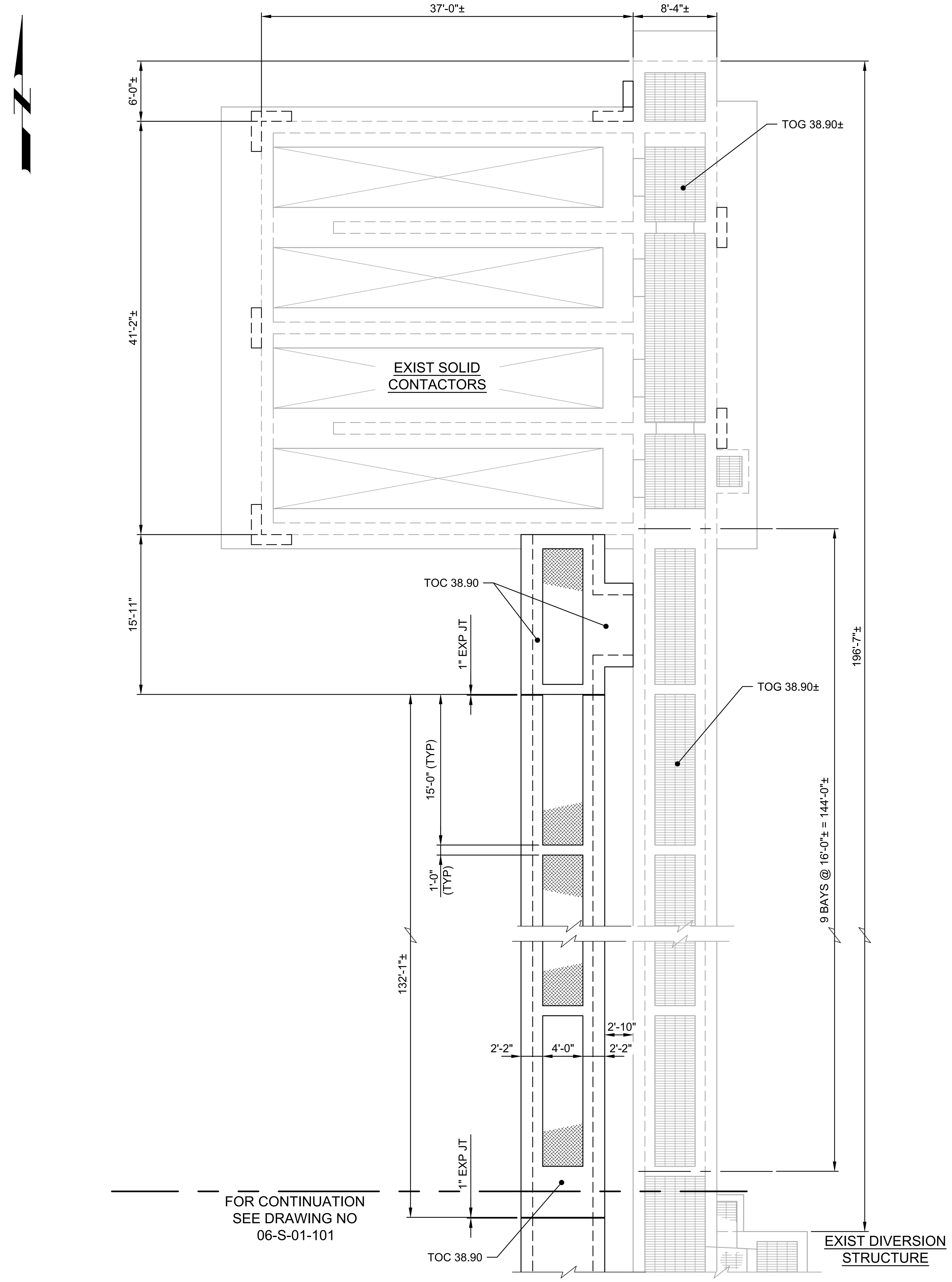


BOTTOM
A PLAN
SCALE: 1/8" = 1'-0"
FILE: 201400_05S9101.dwg



TOP
B PLAN
SCALE: 1/8" = 1'-0"
FILE: 201400_05S9102.dwg

GENERAL NOTES:

1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING 00-S-01-001.
2. FOR STRUCTURAL TYPICAL SECTION SUBGRADE DETAILS SEE DRAWING 00-S-01-002.
3. FOR CONSTRUCTION SEQUENCE AND WORK RESTRICTIONS SEE SPECIFICATION 01140.
4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS.

FIGURE 2-12

REV	DATE	BY	DESCRIPTION
			PROGRESS TO 50% SUBMITTAL NOT FOR CONSTRUCTION

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STRUCTURAL
SOLIDS CONTACTOR PLANS

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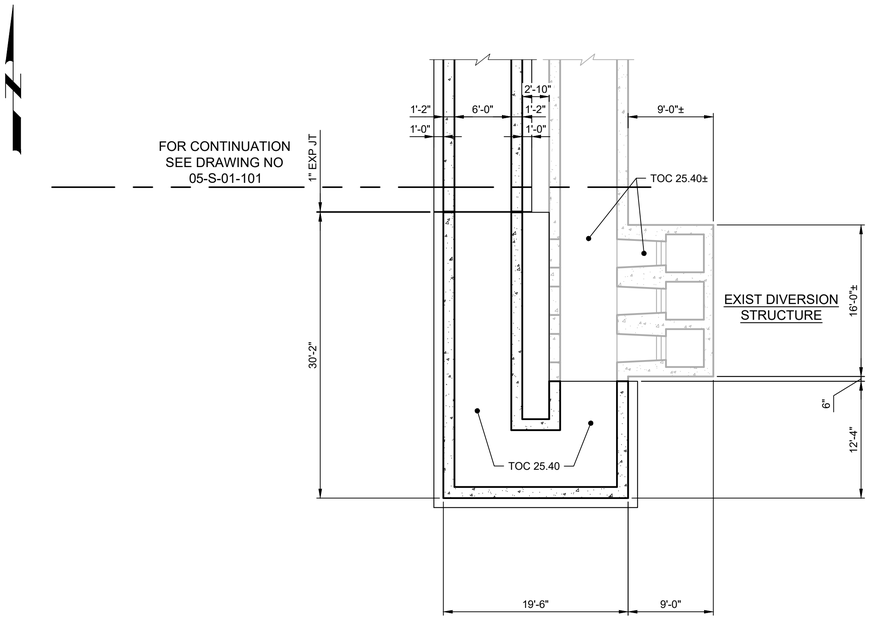
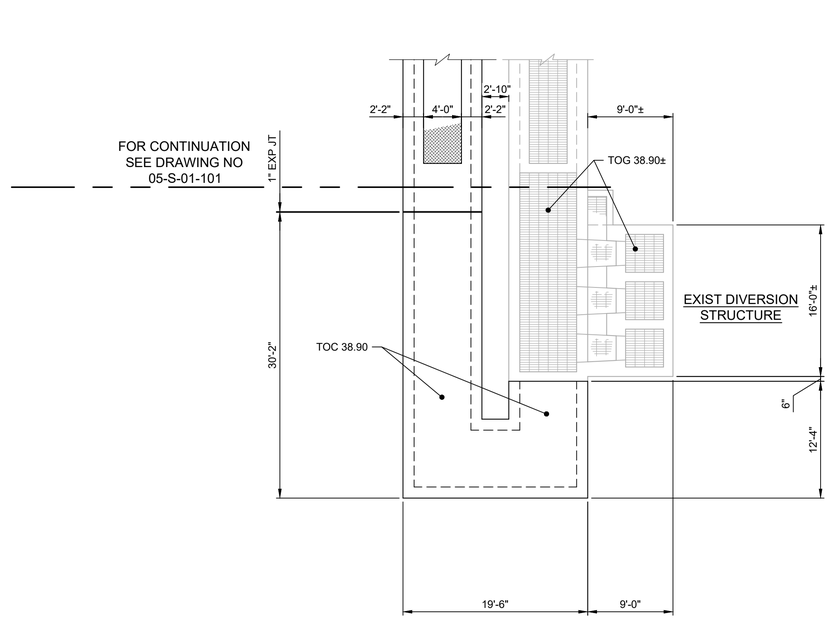


BOTTOM
A PLAN
SCALE: 1/8" = 1'-0"
FILE: 201400_05S9101.dwg



TOP
B PLAN
SCALE: 1/8" = 1'-0"
FILE: 201400_05S9102.dwg

GENERAL NOTES:

1. FOR GENERAL STRUCTURAL NOTES SEE DRAWING 00-S-01-001.
2. FOR STRUCTURAL TYPICAL SECTION SUBGRADE DETAILS SEE DRAWING 00-S-01-002.
3. FOR CONSTRUCTION SEQUENCE AND WORK RESTRICTIONS SEE SPECIFICATION 01140.
4. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS.

FIGURE 2-13

REV	DATE	BY	DESCRIPTION
			PROGRESS TO 50% SUBMITTAL NOT FOR CONSTRUCTION

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STRUCTURAL
EXISTING DIVERSION STRUCTURE
PLANS

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Rehabilitation of the existing solids contactor and channel include:

- Replacement of air diffusers.
- Replacement of gates and valves that are inoperative, have decayed, or have broken operators.
- Replacement of waste activated sludge (WAS) pumps.
- Addition of a new, second solids contact channel to provide for additional aeration capacity as required.
- Replacement of fiberglass reinforced plastic (FRP) grating.

2.2.6 New Conventional Activated Sludge System

The COH-DEM is evaluating the construction of a new conventional activated sludge (CAS) system. With this alternative, the new solids contact channel and snail removal trap, as well as the rehabilitation of the existing solids contactor, contactor channel, and biotowers would no longer be required (see Sections 2.2.5, 2.2.8, and 2.2.10).

The CAS system would be constructed to the east of the existing secondary clarifiers and would serve to reduce BOD and TSS in the wastewater. The system would consist of 3, new approximately 208 foot long, 18 foot wide, and 17 foot deep bioreactors or aeration basins; new approximately 1,500 square foot blower building; and new WAS pumpstation. If the CAS alternative is selected, the existing biotowers, solids contact basins, and solids contact channel would be demolished. The new CAS facilities are shown on Figure 2-14.

2.2.7 New Warehouse Building

A new warehouse building will be constructed to accommodate required electrical and mechanical storage and repair, small parts and tools storage and space for operation and maintenance activities. The new building will also provide facilities for plant staff including restrooms, showers, and locker rooms; break room(s); and/or office space.

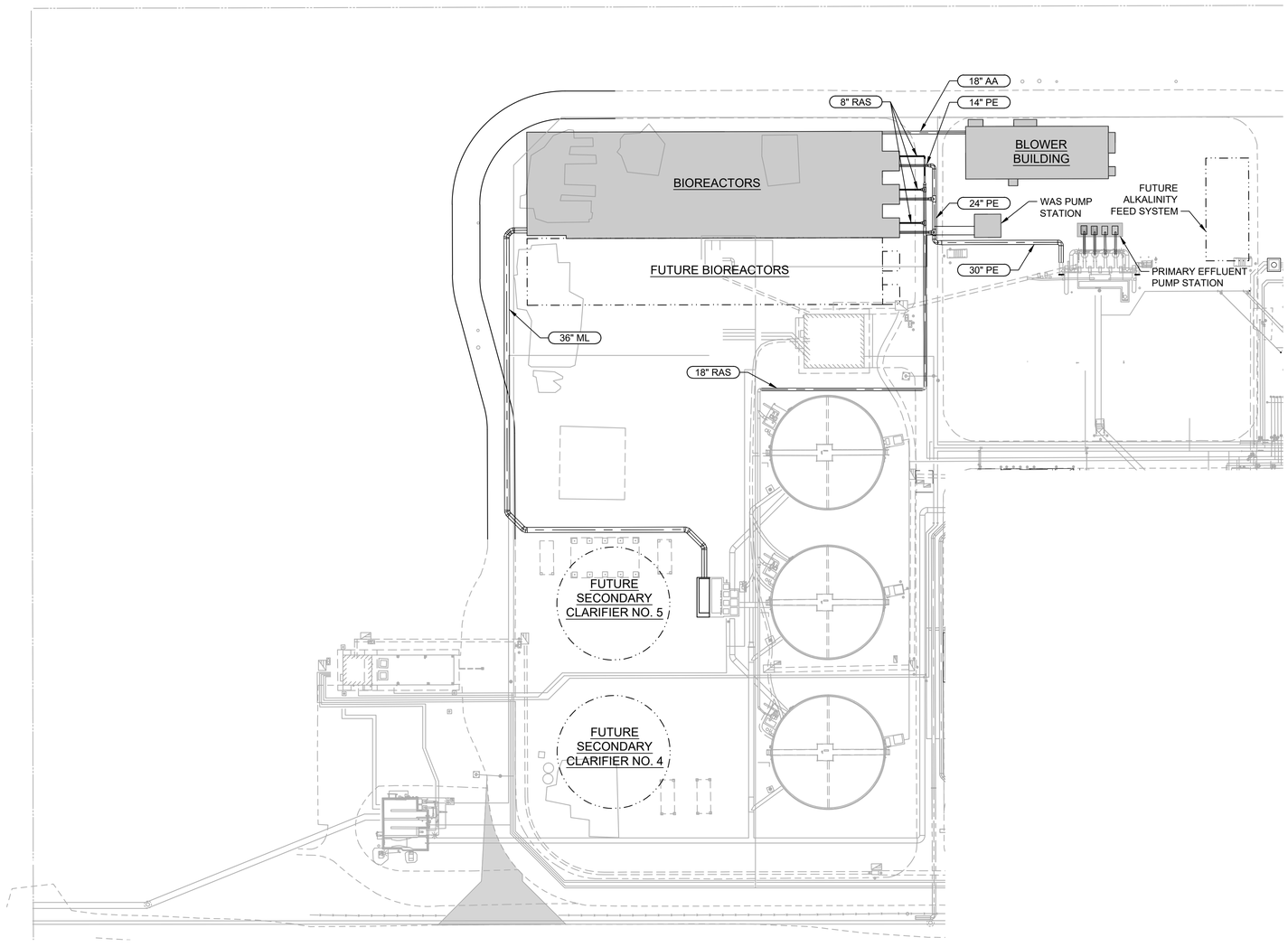
The building is expected to have a footprint of 5,000 to up to 16,000 square feet (sf), and will be constructed in phases. The project will include electrical, water, and sewer utilities; air conditioning; and additional parking.

2.2.8 New Snail Removal Trap

The existing secondary treatment system suffers from snail infestation. To resolve this issue, a new snail trap will be installed on the trickling biotower effluent flow, upstream of the contact basins, along with grit pumping and de-gritting equipment. To further reduce snail issues, a new de-gritting system will be installed on the WAS line.

The new snail removal facility will be about 850 square feet and will be located east of the solids contact basins and channels. New snail removal facilities are shown on Figure 2-15 and include:

- Two (2) biotower snail removal pumps.
- Two (2) waste secondary solids snail removal pumps.



GENERAL NOTES:

1. THE PHASE 2 CONCEPTUAL YARD PIPING PLAN SHOWS EXISTING, PHASE 1 AND PHASE 2 ELECTRICAL AND DUCTBANK ROUTING AND FACILITIES. REFERENCE LEGEND TO FACILITATE DISTINCTION.

LEGEND:

= PHASE 2 ELECTRICAL DUCTBANKS

= PHASE 2 YARD PIPING

= PHASE 2 FACILITIES

= EXISTING FACILITIES

= PHASE 1 FACILITIES

Figure 2-14 - Conventional Activated Sludge System

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GENERAL NOTES:

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3. PLACE TEXT

X KEY NOTES:

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2. PLACE TEXT
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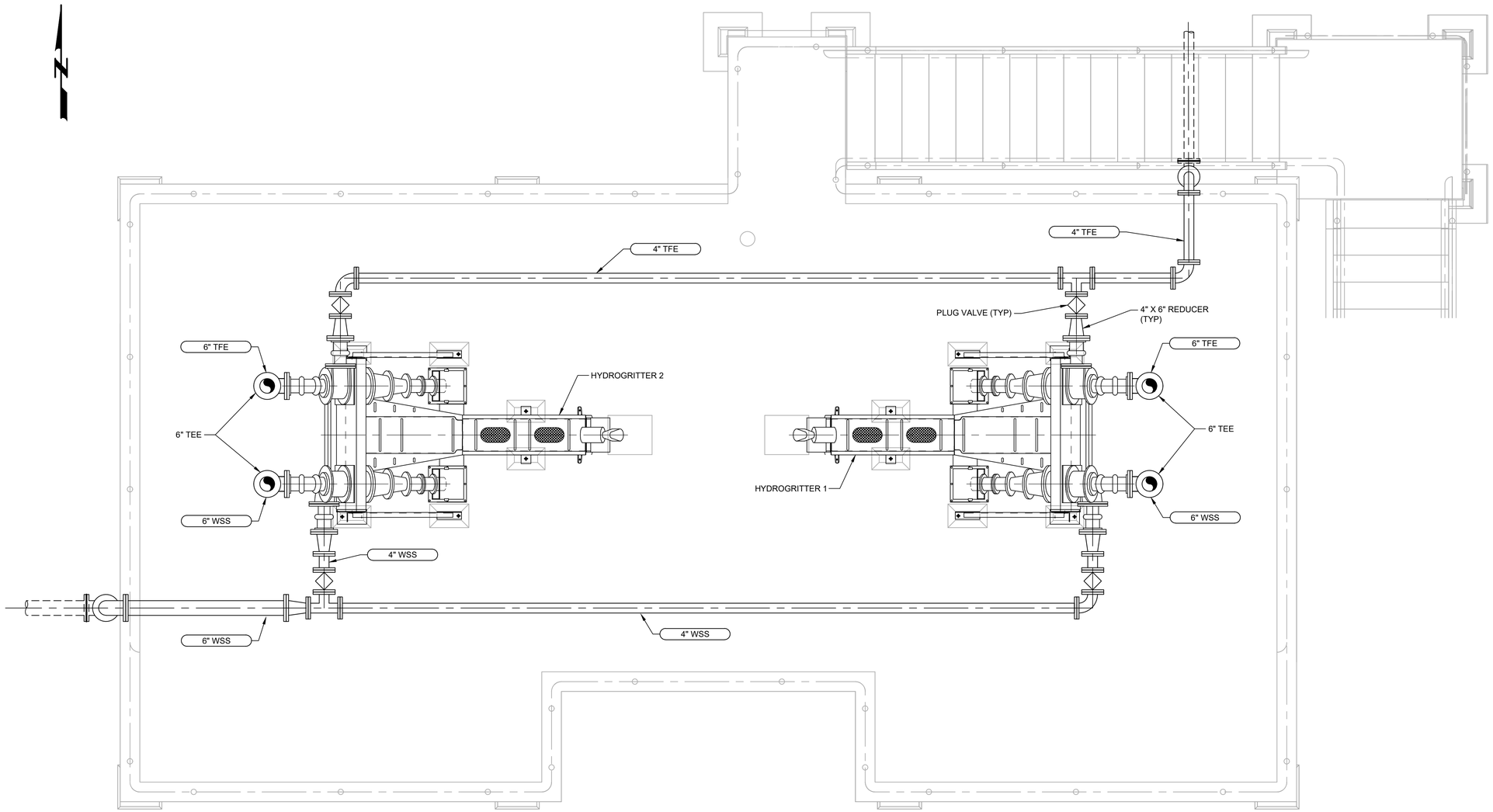

A UPPER PLAN
SCALE: 1/2" = 1'-0"
FILE: 201400_15M0101

FIGURE 2-15

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HILO WWTP REHABILITATION AND REPLACEMENT PROJECT - PHASE 2
MECHANICAL
WSS SNAIL REMOVAL UPPER PLAN

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- Two (2) hydrogritters, each with two (2) cyclones and one classifier.
- Snail bin.

2.2.9 Existing Primary Sedimentation Tank Rehabilitation

Previous condition assessment reports have noted that the existing 3 primary sedimentation tanks have significant deterioration and are in poor condition. The purpose of the tanks is to remove settable solids from the influent wastewater. The 3 exiting concrete reinforced tanks are each approximately 100 feet long, 20 feet wide, and 10 feet deep. The effluent launders in the tanks are equipped with fiberglass covers. The remaining tank area is uncovered. The rehabilitation will not significantly affect the dimensions of tanks.

The goals of the improvements are to restore the treatment capacity of the original design and bring the system into a reliable condition. Rehabilitation of the existing primary sedimentation tanks include:

- Replacement of gates and valves that are inoperative, have decayed, or have broken operators.
- Repair of corroded concrete at the effluent structure and application of protective coatings.
- Replacement of sludge collector chain, flights and drives and associated instrumentation, controls, and electrical switchgear.
- Replacement of scum collection equipment.
- Replacement of primary sludge and scum pumps and associated electrical switchgear.
- Improved ventilation, odor control, and replacement of odor control ductwork near the effluent launders and in the effluent channel.
- Replacement of exposed electrical conduits feeding the equipment at the primary sedimentation tanks.
- Replacement of fiberglass covers in effluent launder area.
- Replacement of primary sludge and primary scum piping.

2.2.10 Existing Biotowers and Biotower Pump Station Rehabilitation

Rehabilitation of existing equipment, associated piping, and minor structural repairs are needed at the existing biotowers and associated biotower pump station. Biotowers, also referred to as “trickling filters,” provide conversion of soluble BOD to insoluble BOD of the incoming sewage flows. The biotowers are about 60 feet by in diameter and 24 feet tall.

Rehabilitation of the existing biotowers and biotower pump station include:

- Replacement of biotower pumps, valves, and gates at the biotower pump station.
- Minor structural repairs to the biotower pump station wet well.
- Replacement of that portion of the biotower influent piping not currently encased in concrete.
- Replacement of biotower media.
- Replacement of biotower ventilation fans and associated electrical gear and ductwork.

2.2.11 Existing Secondary Facilities Building Rehabilitation

The existing secondary facilities building houses solids contactor blowers and MCC's for secondary process equipment. The existing single-story building occupies an area of 1,100 square feet and was constructed when the WWTP was built.

Rehabilitation of the existing secondary facilities building includes:

- Replacement of existing solids contactor blowers in the existing secondary facilities building with higher capacity units.
- Replacement of the roof liner on the secondary facilities building.

2.2.12 Existing Secondary Clarifier Rehabilitation

The three existing secondary clarifiers are in need of general rehabilitation and replacement of support equipment as they have reached their useful life. Rehabilitation of the existing secondary clarifiers include:

- Replacement of inoperative gates and isolation valves.
- Replacement of secondary clarifier effluent valves.
- Replacement of sludge collectors and drives.
- Replacement of return activated sludge (RAS) pumps and discharge valves.
- Replacement of secondary scum pumps and discharge valves.
- Miscellaneous concrete repairs and recoating.
- Replacement of fiberglass reinforced plastic (FRP) grating.

2.2.13 Existing Chlorination Building Rehabilitation

Effluent disinfection was originally designed to use chlorine gas. However, due to safety concerns, the effluent disinfection system has been converted to use sodium hypochlorite (NaOCl) as the method to disinfect the effluent. The existing chlorination building houses chemical feed pumps and storage space for the chemical and is in need of rehabilitation. Rehabilitation of the existing chlorination building includes:

- Replacement of chemical feed pumps and associated electrical equipment.
- Installation of new hypochlorite pump discharge flow meter.
- New roof liner, sunshade, and improved ventilation.

2.2.14 Existing Effluent Disinfection Facility and Discharge Structure Rehabilitation

At the existing effluent disinfection facility, the plant lacks a proper way to measure chlorine residual. Rehabilitation of the existing effluent disinfection facility and discharge structure includes:

- New instrumentation to measure and read chlorine residual in effluent channel.
- Updated controls and alarms for operations and monitoring.

In addition, the existing WWTP 3-water (3W) system will be upgraded.

2.2.15 Existing Primary Facilities Building Rehabilitation

The existing primary facilities building houses multiple ancillary processes including the 2W system, blowers for the existing grit removal and pre-aeration systems, MCCs, the main switchboard, and the standby generator. The existing blowers and main switchboard will be demolished, and the space will be repurposed to house new electrical equipment. Rehabilitation of the existing primary facilities building include:

- New electrical utility service.
- Replacement of main switchboard, MCCs, panelboards, disconnect switches, and other electrical equipment.
- Climate control and ventilation improvements in electrical rooms.
- Upgrade of the 2W system.

2.2.16 Plant-Wide Electrical Improvements

Existing plant electrical systems require upgrade and replacement. Improvements include:

- Replacement of all electrical conductors, MCC's, and ancillary electrical components.
- Replacement of all exterior lighting.
- Replacement of all interior lighting in process buildings.
- Addition of a second standby generator.

2.2.17 Site Civil and Grading Improvements

Due to the age of the existing plant roadways and the additional wear and tear on the roads anticipated during construction, the existing paved areas will be resurfaced or replaced. Figure 2-16 depicts the project paving and grading plan and shows the limits of pavement replacement on this site. If possible, the existing pavement will be recycled to reduce the need for disposal of the old asphalt.

The north area of the WWTP site that was previously cleared as part of the original plant construction will be grubbed of regrowth vegetation and graded to facilitate the placement of excess onsite excavated material and to serve as a storage and construction staging area.

2.2.18 Demolition of Existing Facilities

The project includes the demolition and removal of the following facilities:

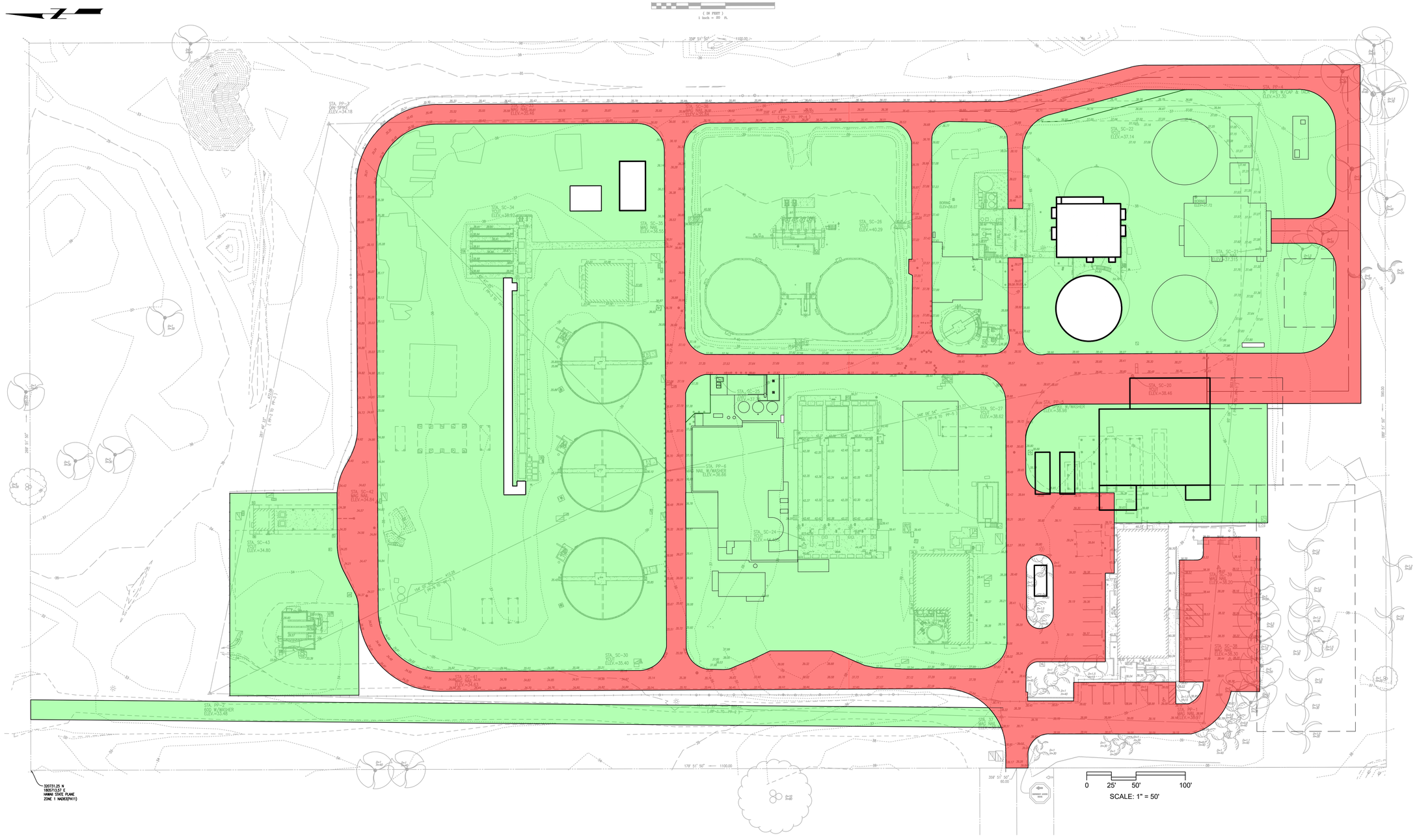
- Existing solids handling building.
- Existing digesters and associated control building.
- Existing DAFT, including the structure and all associated piping and equipment.

Should the COH-DEM implement the option of conventional activated sludge, demolition will also include the existing biotowers, solids contact basins, and solids contact channel as described in Section 2.2.6.

Future WWTP enhancements may include a new cogeneration facility, headworks odor control improvements, and a biosolids dryer. These facilities would enhance plant operations without adding additional treatment capacity.

2.3. Development Schedule

Following design and permitting, and construction of the Proposed Action, it is anticipated to start operating in Q3 or Q4 of 2029.



LEGEND:

= PAVEMENT

= GRAVEL

FIGURE 2-16
PAVING AND GRADING PLAN
COUNTY OF HAWAII

carollo

2.4. Project Costs

The Proposed Action is anticipated to cost approximately $300 million to construct. The various improvements will be primarily funded by the County and may also utilize federal funds through the State of Hawai'i Department of Health (DOH) Clean Water State Revolving Fund (CWSRF)Program, (Project No.: C150062-53 & C150062-54) which would require the Proposed Action to meet all National Environmental Policy Act (NEPA) and Hawai'i CWSRF program requirements.

CHAPTER 3: DESCRIPTION OF EXISTING ENVIRONMENT, IMPACTS, AND MITIGATION MEASURES

3. DESCRIPTION OF EXISTING ENVIRONMENT, IMPACTS, AND MITIGATION MEASURES

3.1. Climate and Climate Change

The island of Hawai'i is characterized by a relatively uniform semi-tropical climate year-round with mild temperatures, moderate humidity, and relatively consistent northeasterly trade winds. The island's climate is home to a multitude of individual microclimates, including 4 out of 5 major climate zones and 8 out of 13 sub-zones. The two dominant geological features of Hawai'i Island, Mauna Loa (13,679-foot summit elevation) and Mauna Kea (13,796-foot summit elevation), significantly influence the island's climate and weather conditions.

Hilo is located on the island's eastern shore within the continuously wet sub-zone of the humid tropical climate zone. The area is prone to heavy rainfall events, especially during the winter months when frontal systems can bring prolonged periods of rain. Annual rainfall in Hilo averages about 84 inches per year, with precipitation ranging approximately 4 inches between the driest month, 5.3 inches in September, and the wettest month, 9.6 inches in March (Giambelluca et al., 2013). Temperatures are relatively uniform throughout the year with averages at the Hilo International Airport ranging from a low of 72 degrees Fahrenheit in the winter months to a high of 78 degrees Fahrenheit in the summer months (DBEDT, 2020).

Wind patterns in Hilo are largely impacted by the interaction between the northeasterly trade winds and the Mauna Loa volcano. The island experiences trade winds, which blow from the northeast and are more persistent in the summer than in the winter and stronger winds in the afternoon than at night. In the absence of trade winds, winds become light and variable. Diurnal heating and cooling of the island also cause daily regularity with onshore breezes during the day, and offshore breezes during the night.

As the impacts of climate change become progressively more prominent in the State of Hawaii**,** it has become crucial to recognize and implement appropriate adaptation and mitigation measures. Climate changes include rising sea levels, warming ocean temperatures, changing rainfall patterns, a decrease in stream base flow, changing wind and wave patterns, and changing habitats and species distribution. While there is yet to be a consensus on the exact nature, magnitude, and timing of how these changes will occur, there is an expectation of a rise in air and sea surface temperatures, a decrease in the prevailing northeasterly trade winds, a decline in average rainfall resulting in the continued decline in stream base flow, an increase in ocean acidity, and sea level rise (Climate Change Brief 2018). There is an overall consensus that these climate changes are linked to anthropogenic (human-caused) global greenhouse gas (GHG) emissions (IPCC 2014).

Excess heat that is trapped in Earth's atmosphere by anthropogenic GHGs is causing dramatic changes to climate dependent ecosystems. Typical GHGs include carbon dioxide, methane, nitrous oxide, and chlorofluorocarbons. The main sources of GHG emissions resulting from human activity are from the following sectors, in order from most emissions to least: fossil fuel power stations, industrial activity, transportation, agriculture, fossil fuel processing, residential and

commercial activity, land use and biomass burning, and waste disposal and treatment. As of 2020, the United States was responsible for approximately 24.56 percent of global carbon dioxide emissions (Global Carbon Project 2021). Within Hawai‘i, the County of Hawai‘i accounted for approximately 14 percent of the state's total GHG emissions in 2017 (ICF and UHERO 2021).

Impacts and Mitigation Measures

No direct or indirect impacts on climate are anticipated with implementation of the Proposed Action. The Proposed Action would be appropriately designed in the context of the surrounding environment and would not affect temperatures, wind, or rainfall levels in the region.

Implementation of the Proposed Action will result in the short-term irrevocable release of GHGs from construction activities associated with the development of the proposed improvements. However, these activities will be temporary and the quantities of GHGs released will be negligible.

The exact nature of how the climate will change is unknown. New information will continually need to be incorporated within future assessments to identify where efforts should be focused when developing adaptation strategies to climatic changes. Nonetheless, climate change projections suggest potential shifts in rainfall patterns, including changes in precipitation intensity and distribution. Design efforts for the Proposed Action should consider these potential changes and incorporate appropriate stormwater management measures to mitigate the impacts of increased rainfall and runoff.

3.2. Physical Environment

3.2.1. Geology and Topography

Hawai'i Island is the youngest and largest island of the Hawaiian island chain. Being volcanic in origin, the island was formed by the coalescence of five volcanoes—Kohala, Hualālai, Mauna Kea, Mauna Loa, and Kīlauea. Mauna Loa and Kīlauea are presently considered the largest active and most productive volcanos on Earth, respectively, while the other three are considered dormant (SOEST 2018). The most active volcano, Kilauea, is located on the southeastern part of the island.

The town of Hilo is built over Mauna Loa lava flows which are characterized by ‘a‘ā (clinker) and pāhoehoe (ropy) lava from various eruptions estimated to have occurred between 750 to 1,500 years ago (Wolfe and Morris, 1996) and as recently as 1881. Flows are typically 5 to 20 feet thick.

The topography of the region is characterized by a diverse range of landforms resulting from volcanic activity, erosion, and tectonic forces.

The project site is located in an area which generally slopes to the north toward the coastline. The natural grade in the vicinity of the project area slopes from the southeast towards the northwest and Kūhiō Bay. The topographic survey shows the project site lies at elevations that range from about 33 feet mean sea level at the northwest corner of the project site to approximately 39 feet mean sea level at the southeast. The topographic characteristics of the WWTP project site have been modified during the initial construction of the existing wastewater treatment plant

improvements, which involved clearing vegetation and leveling the land. However, the surrounding region may have more varied topographic features, including hills, valleys, and coastal cliffs.

Impacts and Mitigation Measures

Construction of the Proposed Action would involve land disturbing activities that would alter the existing topography within the project area. Such activities may include clearing, grading of the northerly portion of the site, excavation, soil probing and grouting of voids below structures, and backfilling required to construct new structures and buildings. It is anticipated that finished grades in the process area of the WWTP will resemble existing grades. Finished grades in the northern portion of the site will be more uniform and slightly higher overall than existing.

The Proposed Action will require subsurface excavation for placement of slab foundations for the new structures. Once construction of the structures have been completed, the surrounding areas will be restored to match/blend to existing conditions.

The deepest excavations (approximately 15 to 20 feet below grade) will be for the headworks, digesters, digester control buildings, and CAS bioreactors. In addition, probing and grouting to fill voids will occur up to 45 feet below the bottom of the finished excavation. Excavations, probing, and grouting for the new WWTP structures would not create adverse impacts to the geology of this area of Hawai'i Island.

Based on the above, no significant impacts to the topographic characteristics are anticipated and no mitigation measures are proposed or anticipated to be required.

3.2.2. Soils and Agricultural Land Productivity

According to the U.S. Department of Agriculture National Resources Conservation Service's (NRCS) *Soil Survey of the Island of Hawai'i, State of Hawai'i*, dated December 1973, soils within the project area are classified in the Papai series (rPAE). This series consists of deep, well drained organic soils over fragmental 'a'a lava substrates. The Papai series soils form at low elevations, from sea level to 1,200 feet, on the windward slopes of Mauna Loa and Kīlauea with 2 to 10 percent slopes. This series is described as extremely stony muck, with three to 25 percent slopes and consists of well-drained, thin, extremely stony organic soils over fragmented 'a'a lava. Areas with Papai soils are mostly covered in woodland, with some small areas used for pasture, orchards, and truck crops. Generally, about 8 inches deep, permeability for these soils is rapid, runoff is slow, and the erosion hazard is slight. See Figure 3-1.

The State of Hawai'i Department of Agriculture's *Agricultural Lands of Importance to the State of Hawai'i (ALISH)* system of defining agricultural suitability classifies lands into four categories: Prime Lands, Unique Lands, Other Lands and Unclassified. According to the ALISH system map for the Island of Hawai'i, the project area is classified as Other Lands defined as land other than Prime or Unique Agricultural Land that is also of statewide or local importance to agricultural use. See Figure 3-2.

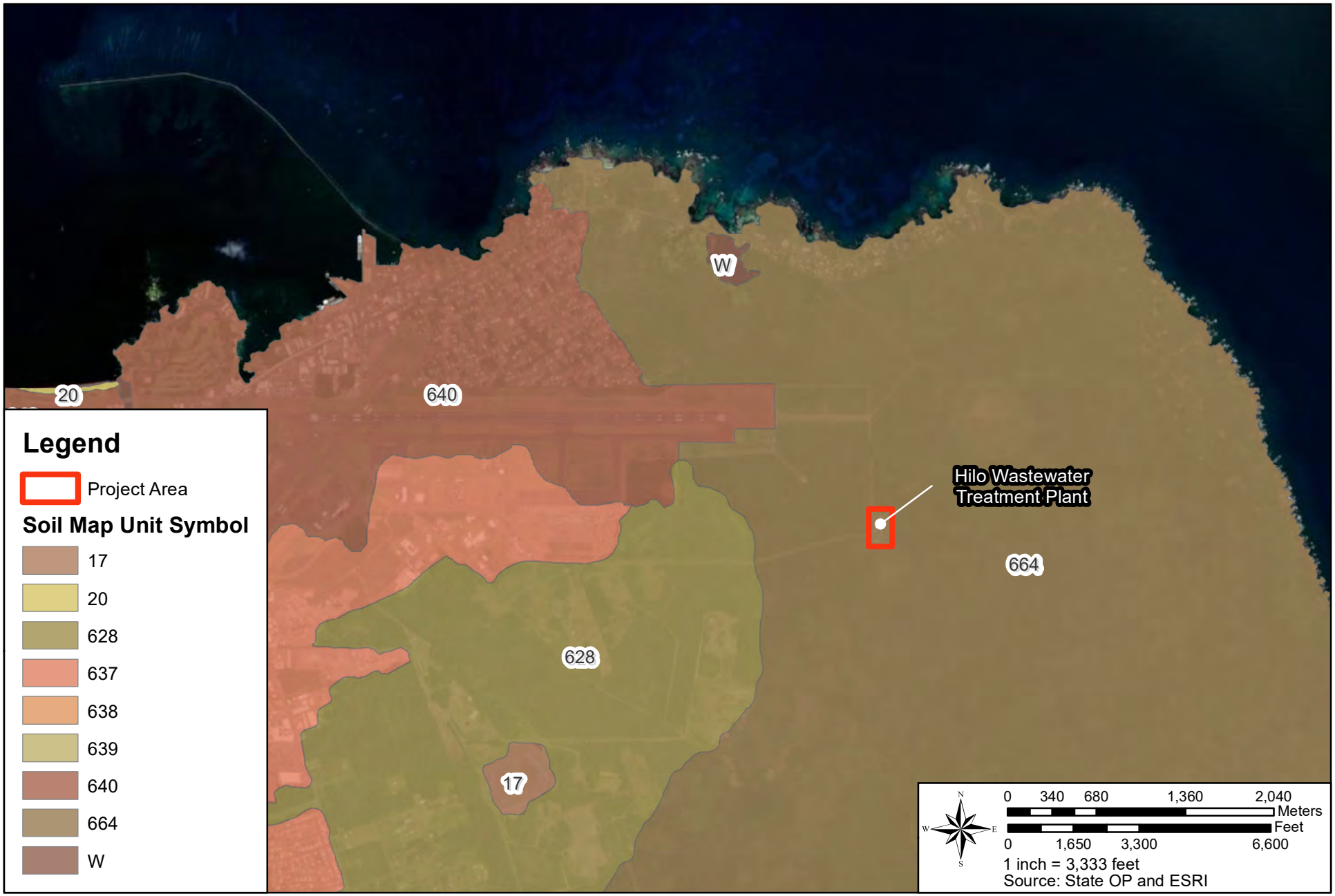


FIGURE 3-1

SOIL CLASSIFICATIONS MAP

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT

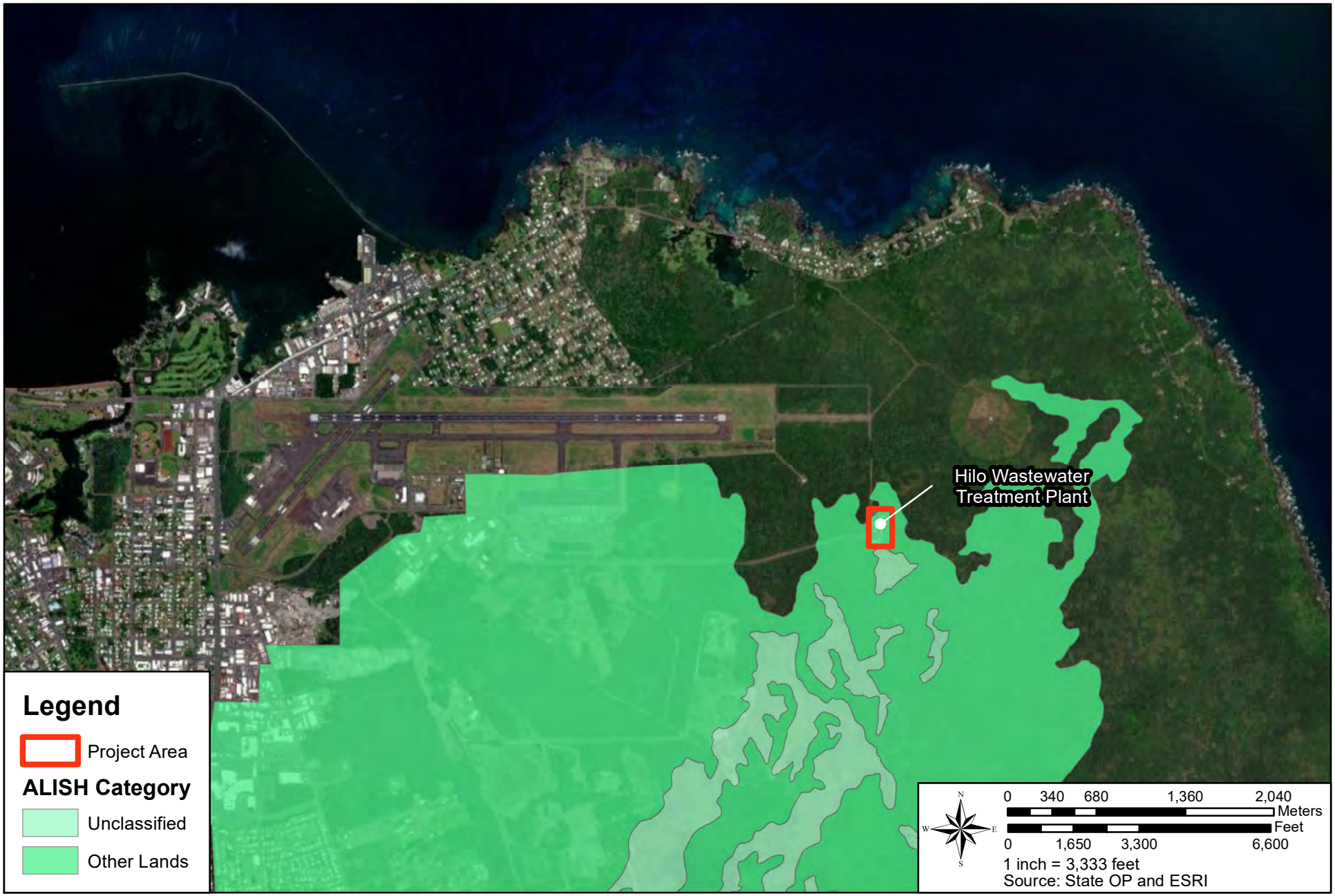


FIGURE 3-2

AGRICULTURAL LANDS OF IMPORTANCE TO THE STATE OF HAWAI'I

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT

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The *Detailed Land Classification, Island of Hawai'i*, published by the University of Hawai'i, Land Study Bureau (LSB), evaluates the quality or productive capacity of certain lands on the island using a five-class productivity rating system, with "A" representing the class of the highest productivity and "E" the lowest. Under this system, the project site is categorized as class E agricultural productivity.

Impacts and Mitigation Measures

Construction of the Proposed Action would involve land disturbing activities including clearing, grading, excavation, and backfilling. These land disturbing activities could result in short-term soil erosion impacts. These activities would be mitigated by incorporating best management practices (BMP) and erosion control measures into the project contract documents.

Site-specific BMPs and erosion control measures will be determined during the design phase although it is anticipated that these measures may include: revegetating or stabilizing disturbed areas of soil as soon as possible after ground disturbing work has been completed, applying protective covers to soil and material stockpiles, and installing appropriate erosion and sedimentation control devices during construction. The Proposed Action will comply with the requirements of Hawai'i County Code, Chapter 10, related to Erosion and Sedimentation Control. Following construction, exposed soils in the project area would be stabilized or re-vegetated to control erosion.

Soil erosion impacts would also be mitigated through coordination with the appropriate agencies during permitting and construction. A National Pollutant Discharge Elimination System (NPDES) permit for storm water runoff from construction activities is anticipated to be required as individual and/or cumulative soil disturbances in the project site may exceed one acre of land area. Any discharges related to project construction or operation activities will comply with applicable State Water Quality Standards as specified in Hawai'i Administrative Rules (HAR), Chapter 11-54 Water Quality Standards and Chapter 11-55 Water Pollution Control, Department of Health.

Given the low productivity potential of the soil in the area and the need for high inputs, the project area is not considered suitable for agricultural activity. Moreover, historical records of land use indicate no cultivated agricultural use has occurred on the project site or in the general area of the Hilo WWTP site. Thus, implementation of the Proposed Action would not reduce the inventory of productive lands available for agricultural uses.

3.3. Hydrology

3.3.1. Groundwater

The island of Hawai'i has relatively porous geology and its rainfall infiltrates into the subsurface as groundwater. The uppermost groundwater aquifer beneath the project area is typically six to seven feet above mean sea level (msl) which equates to approximately 26 to 33 feet below the ground surface. The State of Hawai'i has classified groundwater under an aquifer coding system to identify and describe groundwater aquifers. The project area overlies the Northeast Mauna Loa Aquifer Sector Area (ASEA) of the Hilo Aquifer System (See Figure 3-3). The Northeast Mauna Loa ASEA has a sustainable yield of 740 million gallons per day (mgd) with the Hilo Aquifer

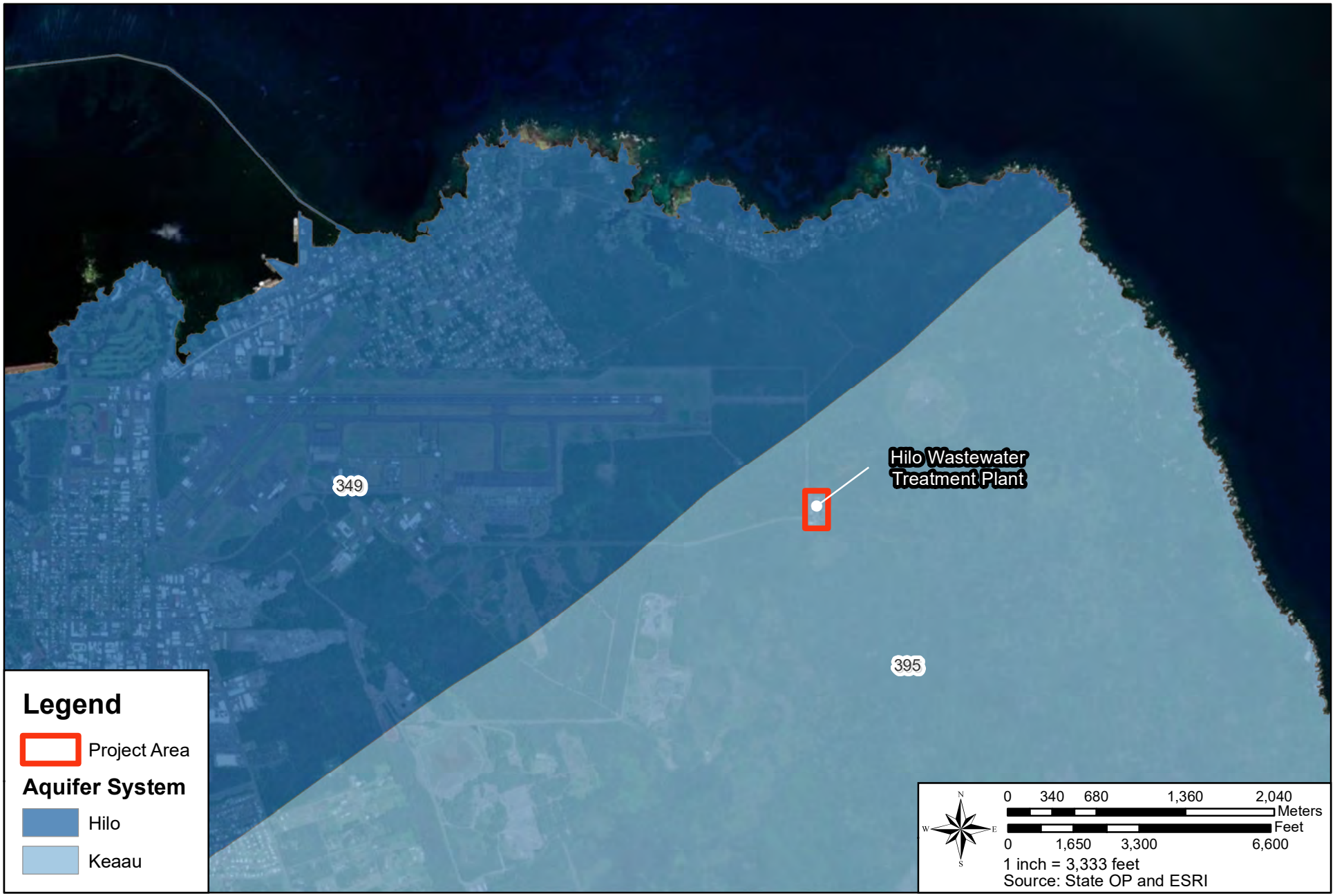

FIGURE 3-3

AQUIFER SYSTEM AREA MAP

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT

System having a sustainable yield of 395 mgd. The Northeast Mauna Loa ASEA includes 41 production wells. Of the 41 production wells, 15 are categorized as municipal, 1 is categorized as irrigation, 19 are industrial, 1 is domestic, and 5 are categorized as other. There are also 16 drilled wells categorized as unused.

Groundwater within this aquifer exists primarily as basal groundwater followed by high level dike and perched water. Cap rock, although thick and extensive, does not play an important role in the coastal regions of the aquifer. The sustainable yield of an aquifer is the amount of groundwater that can be pumped without depleting the source; the Hilo Aquifer System has a sustainable yield of 347 million gallons per day (mgd) (DWS, 2010).

HAR Section 11-23.4 provides criteria for classifying aquifers into those that are designated as underground sources of drinking water and those that are not. The boundary between non-drinking water aquifers and underground sources of drinking water is generally referred to as the underground injection control (UIC) line. The Hilo WWTP project site is about 1.3 miles below (makai) and downgrade of the UIC line, which means that the underlying aquifer is not considered a drinking water source.

Impacts and Mitigation Measures

The deepest excavations required for the various improvements would extend to approximately 20 feet below the surrounding grade. Probing and grouting of voids beneath structures would extend up to 45 feet below the deepest excavation. These depths would not affect groundwater resources. Moreover, the project site lies at approximately 33 feet mean sea level and the southeast portion at approximately 39 feet mean sea level. Based on the above, no adverse impacts on groundwater are anticipated with implementation of the Proposed Action.

Also, the underlying aquifer at the project site is not considered a drinking water source.

3.3.2. Surface Water

There are very little surface water resources in the general area due to the permeability of the ʻaʻa and pāhoehoe lava beneath the soil at the project site. Given the topographic characteristics of the general area surrounding the WWTP project site, any surface water resource which might be present would occur during a storm event and would discharge to the surrounding subsurface area before reaching the coastline.

The nearest coastline is approximately 1.29 miles to the north of the Hilo WWTP project site. There are no delineated or proposed wetlands on the project site or in the area and there are no direct hydrologic connections between the project site area and nearby surface waters.

Impacts and Mitigation Measures

During construction, surface water and soil erosion impacts would be mitigated by incorporating Best Management Practices (BMPs) and erosion control measures into the contract documents. In addition, the project will comply with the requirements of Hawaiʻi County Code, Chapter 10, related to Erosion and Sedimentation Control.

Soil erosion impacts would also be mitigated through coordination with the appropriate agencies during permitting and construction. A NPDES permit for storm water runoff from construction activities is anticipated to be required as individual and/or cumulative soil disturbances in the project site may exceed one acre of land area. Any discharges related to project construction or operation activities will comply with applicable State Water Quality Standards as specified in Hawai‘i Administrative Rules (HAR), Chapter 11-54 Water Quality Standards and Chapter 11-55 Water Pollution Control, Department of Health.

The construction documents will require the contractor to submit erosion control and stormwater runoff control plans to the County and the State of Hawai'i Department of Health (DOH). Typically, the plans will require use of silt fences or filter socks to surround the construction site, including material storage and staging areas, to control surface flows during construction. Any drainage inlets near the construction site will be protected to prevent silt in the surface runoff from entering into the stormwater system.

Given the sites of the various improvements within the 14.899-acre project site, it is anticipated individual BMPs will need to be developed at the construction site.

Based on use of the BMPs during construction, no direct, indirect or cumulative impacts on surface waters within or in the vicinity of the project site are anticipated with implementation of the Proposed Action. Further, there are no major surface water features such as rivers, streams, lakes, ponds, or wetlands on or within proximity of the project site or in the area.

3.4. Natural Hazards

3.4.1. Sea Level Rise

Over the past century, Earth’s climate has experienced unprecedented natural changes and variability. Anthropogenic GHG emissions are causing global temperatures to rise and climate disruption. The concentration of carbon dioxide, as well as other GHG emissions, are well outside the range of natural variability and are reaching the highest levels seen in at least 800,000 years (Hawai‘i Climate Change Mitigation and Adaptation Commission, 2017).

The melting of the glaciers and ice sheets due to the rise of global temperatures and oceans is causing sea level to rise at increasing rates. Rising sea level and projections of stronger and more frequent El Niño events and tropical cyclones in waters surrounding Hawai'i indicate a growing vulnerability to coastal flooding and erosion. If GHG emissions are maintained at its current rate of increase, the Intergovernmental Panel on Climate Change (IPCC) (2014) predicts up to 3.2 feet of global sea level rise by the year 2100. However, recent observations and projections show that this magnitude of sea level rise could occur as early as year 2060 under recently published high-end scenarios (Hawai‘i Climate Change Mitigation and Adaptation Commission, 2017). Uncertainties around the future behavior of the Earth’s cryosphere and global GHG emission trajectories have raised questions and debates around the exact timing of that rise.

The topographic survey of the project site shows the northwest portion lies at approximately 33 feet mean sea level and the southeast portion at approximately 39 feet mean sea level. The nearest coastline is located approximately 6,800 feet (1.29 miles) north of the project site.

Thus, the project site is not located within the 3.2-foot or 6-foot sea level rise exposure area (SLR-XA) as depicted by the National Oceanic and Atmospheric Administration (NOAA) Sea Level Rise data.

Impacts and Mitigation Measures

As previously discussed, the project site lies at approximately 33 feet mean sea level and the southeast portion at approximately 39 feet mean sea level. Given the existing elevations of the 14.899-acre project site and distance from the nearest coastline, the exact nature of how and when the sea level will rise is unknown. New information will continually need to be incorporated within future assessments to identify where efforts should be focused when developing adaptation strategies to sea level rise. Thus, no short or long-term impacts from sea level rise are anticipated during construction or from operation of the various proposed improvements.

3.4.2. Flood and Tsunami Hazard

According to the Flood Insurance Rate Map (FIRM) Panel Number 1551660910F, (effective 9/29/2017) prepared by the Federal Emergency Management Agency (FEMA), the Hilo WWTP project site along with much of the surrounding area is designated as "area of minimal flood hazard." See Figure 3-4.

The Project Site is also located outside of the tsunami evacuation zone according to the Tsunami Evacuation Zone maps for Hawai'i Island. See Figure 3-5

Impacts and Mitigation Measures

The Hilo WWTP project site and surrounding areas are shown as "area of minimal flood hazard". Also, the project site lies at approximately 33 to 39 feet mean sea level and is located about 1.29 miles from the nearest coastline. Thus, no direct, indirect or cumulative impacts on flood and tsunami hazards are anticipated to the Hilo WWTP Improvements project. Thus, the proposed improvements are not anticipated to increase flood risks or cause any adverse flood-related impacts within the project area or lower elevation properties. Lastly, the project site is located outside the tsunami evacuation zone.

3.4.3. Hurricane

The Hawaiian Islands are seasonally affected by Pacific hurricanes from the late summer to early fall months. The frequency and intensity of these storms can vary from year to year, influenced by factors such as sea surface temperatures, atmospheric conditions, and climate patterns. While the island is not as prone to hurricanes as some other regions in the Pacific, it is important to consider the potential impacts they can have on the Proposed Action.

Strong winds associated with hurricanes can cause extensive damage to structures, including buildings, power lines, and other infrastructure. Heavy rainfall can lead to flash floods, landslides, and erosion, particularly in areas with steep slopes or inadequate drainage systems. Storm surge, which is the abnormal rise in sea level caused by the hurricane's winds, can result in coastal flooding and damage to coastal ecosystems.

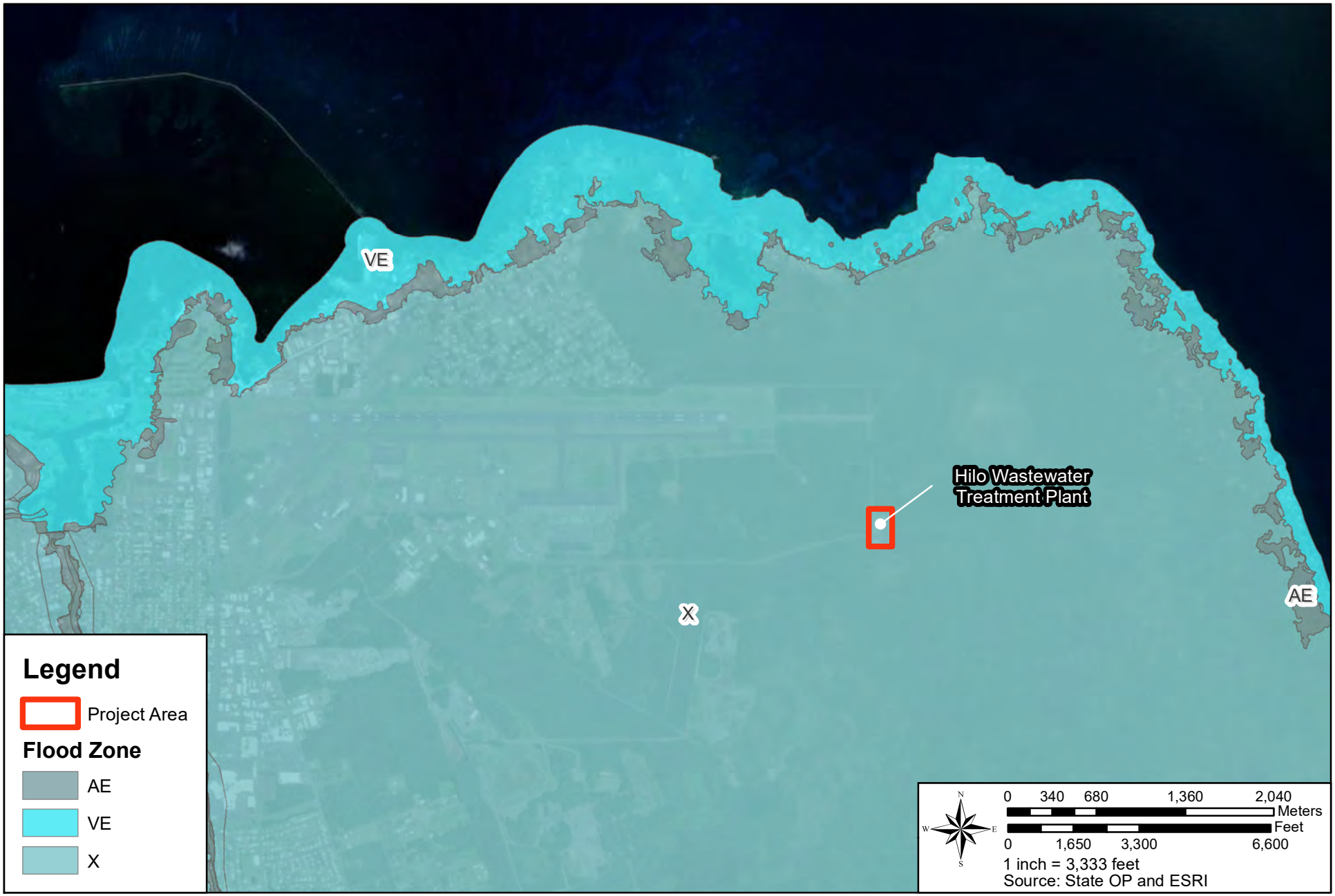

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FIGURE 3-4

FLOOD INSURANCE RATE MAP

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT

WILSON OKAMOTO CORPORATION

FIGURE 3-5

TSUNAMI EVACUATION ZONE MAP

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT

During hurricanes and storm conditions, high winds cause strong uplift forces on structures, particularly on roofs. Wind-driven materials and debris can attain high velocity and cause extensive property damage and harm to life and limb. It is difficult to predict these natural occurrences, but it is reasonable to assume that future events will occur. While there are typically between four or five tropical cyclones in the central Pacific Ocean each year, less than ten have gotten within 200 nautical miles of the Hawaiian Islands since recordation began in 1950. All islands have been in the direct path of a tropical cyclone at least once (NOAA 2018).

Impacts and Mitigation Measures

The various improvements would be designed to account for the potential hazards posed by hurricanes to the extent practical. Most of the improvements would be cast-in-place to ensure their long-term use. This type of construction method should also typically mean the facility/structure will be able to withstand high wind events.

Notwithstanding their construction method and any mitigation measures taken, the unpredictable and sometimes destructive nature of hurricanes ultimately limits the extent of practical measures that can be taken to avoid hurricane impacts. However, the various improvements will be designed to meet the County of Hawai'i building code and the International Building Code related to structures.

Physical components of the Proposed Action would be designed in consideration of the potential hazards posed by hurricanes to the extent practical. Irrespective of any mitigation measures taken, the unpredictable and sometimes destructive nature of hurricanes ultimately limits the extent of practical measures that can be taken to avoid hurricane impacts. As such, no additional mitigation measures are proposed or anticipated to be required.

Based on the above, no direct, indirect, or cumulative impacts related to hurricane hazard are anticipated with implementation of the Proposed improvements.

3.4.4. Volcanic Hazard

The island of Hawai‘i is divided into 9 lava flow hazard zones, with lava flows most likely to occur in Zone 1 and least likely to occur in Zone 9. Zone categorizations are primarily based on the location of active vents, location and frequency of both historic and prehistoric eruptions, and larger topographic features that would affect the paths of future flows. The hazard boundaries are approximate, and the change in the degree of hazard is generally gradual rather than abrupt.

The Hilo WWTP project site is situated approximately 32 miles from Kīlauea Volcano, the nearest active vent and approximately 36 miles from the Mauna Loa northeast rift zone. According to the USGS hazard classification the entire project area is contained in lava-flow hazard Zone 3. This Zone includes areas less hazardous than Zone 2 because of greater distance from recently active vents and (or) because of topography. One to five percent of Zone 3 has been covered since 1800, and 15 to 75 percent has been covered in the last 750 years.

Impacts and Mitigation Measures

The Hilo WWTP project site is subject to the hazard of lava flows due to the topography of the surrounding area and proximity to an active vent. The Proposed Action would not alter the topography or decrease proximity in a way that would make the project site more susceptible to volcanic hazards. Given the destructive nature of lava flows, there are no practical measures to avoid impacts to the various improvements from lava flows. Hawaiian lava flows generally advance slowly and can be easily avoided by people. No mitigation measures are proposed or anticipated to be required.

3.4.5. Seismic Hazard

Earthquakes in the Hawaiian Islands are primarily associated with volcanic eruptions resulting from the inflation or shrinkage of magma reservoirs beneath, which shift segments of the volcano. The Island of Hawai'i experiences thousands of earthquakes each year; however, most are so small that they can only be detected by instruments. Although difficult to predict, an earthquake of sufficient magnitude could cause structural or other damage to public facilities including wastewater treatment facilities. The seismic risk classification of the Island of Hawai'i is Zone 4 (County of Hawai'i, 2007).

Earthquakes may occur before or during an eruption or may result from the underground movement of magma that comes close to the surface. On the Island of Hawai'i, earthquakes directly associated with the movement of magma are concentrated beneath the active Kilauea and Mauna Loa Volcanoes. Typically, the risk of seismic activity and degree of ground movement decreases with the distance from these active volcanoes. A few of the island's earthquakes are less directly related to volcanism. These originate in the zones of structural weakness at the base of the volcanoes or deep within the earth beneath the island.

Several destructive earthquakes have occurred on the Island of Hawai'i. The locations of larger damaging on-island earthquakes since 1868 have generally occurred in the southeast portion of the island near Kilauea, with the most recent destructive earthquake on this south flank occurring on June 26, 1989 with a magnitude of 6.1. More recently, a magnitude 6.9 earthquake occurred on May 4, 2018 offshore and east of Kilauea, though this earthquake was classified as non-destructive.

Impacts and Mitigation Measures

Hawai'i County Code (HCC) § 5A-2-1 indicates the "International Building Code, 2018 Edition" (IBC) – copyrighted and published in 2018 by the International Code Council, Incorporated – is adopted by the County. Chapter 5 is the applicable code for the construction of buildings, structures, and facilities in the County. The purpose of the seismic provisions in the IBC is primarily to safeguard against major structural failures and loss of life; limiting damage or maintaining functions is not a primary purpose. At a minimum, structures are to be designed and constructed to resist the effects of ground motions from seismic events. The seismic hazard characteristics described in the IBC are based on the seismic zone and proximity of the site to active seismic sources.

The Hilo WWTP improvements would be designed and constructed to meet the requirements of the 2018 IBC and HCC Chapter 5 and would comply with seismic loadings

established for the County of Hawai‘i. This would minimize the potential for an uncontrolled release of untreated or partially treated sanitary wastewater, or emergency generator diesel fuel from the facility during a seismic event. Further, as previously discussed, the Hilo WWTP improvements would be cast-in-place structures which tend to be less susceptible to damage from a seismic event. Lastly, it is also recommended that the CoH-DEM develop a facility management plan which may include emergency response plans.

3.4.6. Wildfire Hazard

Wildfires can threaten life and property, but they can also harm the environment and threaten important natural resources such as endangered species. While sometimes caused by lightning, nine out of ten wildfires are human-caused. Put simply, "wildfire" is the term applied to any unwanted and unplanned fire burning in forest, shrub or grass regardless of whether it is naturally or human induced (DEM, 2020).

All of the Hawaiian Islands are susceptible to wildfires, especially during prolonged drought and high winds. In recent years, the average annual cost to suppress wildfires in Hawai‘i is about $1,100,000 - making it a Statewide risk (DEM, 2020). The greatest danger of fire is where wildlands borders urban areas. Through August, 2018, wildfires in Hawai‘i have burned 30,000 acres (about double the annual average). Historically, the majority of these fires have been directly caused by humans, either directly or by negligence. The Project Site is located in an area which is at Low Risk for wildfire. Wildfires pose a significant threat to health and human safety, and must be taken very seriously.

Impacts and Mitigation Measures

The State Department of Land and Natural Resources-Division of Forestry and Wildlife (DLNR-DOFAW) has adopted a Fire Management Handbook, which specifies its standards for prevention, pre-suppression, and suppression. The document provides a structured approach in providing for public/firefighter safety and minimizing damage to Hawai‘i's environment. Funding for the fire management program is provided by the State's general fund and federal cost share programs through the U.S. Forest Service. These programs include the Rural Community Fire Protection and Rural Fire Protection and Control programs. Additionally, the DLNR-DOFAW is a key agency within the State who can trigger provisions of the Stafford Act (Fire Suppression Assistance), which provides for FEMA funding assistance in situations where forest and grass fires on public or private lands threaten a major disaster to communities and economies.

The proposed facilities should be designed according to National Fire Prevention Association (NFPA) 820 “Standard for Fire Protection in Wastewater Treatment and Collection Facilities.” In accordance with Hawai‘i Fire Department requirements, Fire Department access and water supply to the proposed WWTP site would be designed to comply with Chapter 18 of NFPA 2006 Uniform Fire Code as amended by the County.

3.5. Biological Resources and Natural Environment

Biological resources surveys of the project site were conducted on July 18,2022, October 7, 2022, and February 15, 2023. A summary report dated March 2023 provides an overall summary of the findings of the three biological resources surveys which is included in this report in Appendix A. A discussion of the findings follows.

The surveys found vegetation within the currently fenced area of the Hilo WWTP is entirely short stature herbaceous species adapted to growing in minimal soil and conditions of regular disturbance (ruderal habitat). Overall, the vegetation is dominated by introduced (non-native) species with a total of 98 plant species were documented, with 12 being native (indigenous or endemic), and 5 Polynesian introductions.

The biological resources survey found the flora within the WWTP project site is unremarkable. No species of any special conservation concern are present. No endangered or threatened species were found as listed by the FWS or the State of Hawai'i Department of Land and Resources. Nine native (indigenous) plant species are present, but none is considered rare in the Hilo area nor across the Hawaiian Islands. As a result of human and wild animal activity, the Hilo WWTP project site is dominated by common, naturalized plant species, and the site is maintained with mowing, weed whacking and application of herbicides.

The avian survey found a total of 11 species, representing eight separate families, were recorded during the three surveys. All the avian species recorded are alien to the Hawaiian Islands. No native species were detected nor expected given the habitats present within the developed area of the Hilo WWTP project site and the immediately adjacent area.

The biological resources report noted, it is possible that a small number Hawaiian Petrel (*Puffinus sandwichesis*), Band-rumped Storm-Petrel (*Hydrobates castro*), and Newell's Shearwater (*Puffinus newelli*) may overfly the project site and surrounding area between April and the middle of December each year. The various studies have found the primary cause of mortality in Hawaiian Petrels and Newell's Shearwaters in Hawai‘i is thought to be predation by alien mammalian species at the nesting colonies. Collision with man-made structures is considered the second-most significant cause of mortality of these listed seabird species in Hawai‘i.

Further, nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with man-made structures and, if not killed outright, become easy targets of opportunity for feral mammals. Lastly, as previously stated, the biological resources report stated no suitable nesting habitat exists for any of the listed species within the developed area of the Hilo WWTP project site and the immediately adjacent area.

Two terrestrial mammalian species were recorded during the three surveys. Both detected species are alien to the Hawaiian Islands.

Additionally, on February 17, 2023, the DOH initiated informal consultation with the U.S. Fish and Wildlife Service (FWS) regarding the Hilo WWTP project and requested concurrence on the proposed determination under Section 7 of the Endangered Species Act (ESA). Further, the DOH requested a list of threatened and endangered plant and animal species and critical habitats within the project site and/or action area. On May 2, 2023, the FWS replied to the DOH and provided species the Hilo WTTP improvements may affect, but not likely to adversely affect (Appendix B):

- Ōpe‘ape‘a or Hawaiian hoary bat (*Lasiurus cinereus semotus*),
- Nēnē or Hawaiian goose (*Branta sandvicensis*),
- Hawaiian waterbirds, including koloa or Hawaiian duck (*Anas wyvilliana*), ae‘o or Hawaiian stilt (*Himantopus mexicanus knudseni*), and ‘alae ke‘oke‘o or Hawaiian coot (*Fulica americana alai*),

- Hawaiian seabirds, including the ʻuaʻu or Hawaiian petrel (*Pterodroma sandwichensis*), ʻaʻo or Newell's Townsend's shearwater (*Puffinus auricularis newelli*), and the ʻakēʻakē or Hawaiʻi distinct population segment of band-rumped storm-petrel (*Oceanodroma castro*),
- Federally listed flowering plants, ferns, and allies, ʻalani (*Melicope zahlbruckneri*), hau kuahiwi (*Cyrtandra nanawaleensis* and *Hibiscadelphus giffardianus*), and M*icrolepia stirgosa var. mauien.*

The FWS reply stated their response has been prepared under the authority of, and in accordance with, Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.) as amended (ESA).

Section 7 of the Endangered Species Act, Interagency Cooperation (16 U.S.C. § 1536), states each federal agency shall, in consultation with and with the assistance of the Secretary of the Interior, ensure that any action authorized, funded, or carried out by such agency (an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined, after consultation as appropriate with affected states, to be critical, unless such agency has been granted an exemption for such action.

A summary of the biological resources reports and the FWS response regarding the flora and fauna of the project site is provided below.

3.5.1. Flora

The findings of the flora surveys indicate overall, the vegetation of the project site is dominated by introduced (non-native) species. A total of 98 plant species were documented, with 12 being native (indigenous or endemic), and 5 Polynesian introductions. The majority of the species recorded are non-native, naturalized plants capable of surviving ruderal conditions. Two native species were documented, but neither is considered rare in the Hilo area nor across the Hawaiian Islands. Additionally, one species considered to be an early Polynesian introduction was documented. See Appendix A.

Further, construction activities related to the Hilo WWTP project site in the 1990's would have removed any flora which was present at that time.

The FWS records indicate the federally listed plants and ferns, *Melicope zahlbruckneri*, *Cyrtandra nanawaleensis*, *Hibiscadelphus giffardianus*, and *Microlepia stirgosa var. mauiensis* may occur in the project area. The biological resources surveys conducted on the project site did not record any federally listed plants species.

Impacts and Mitigation Measures

The biological resources survey indicated vegetation within the existing developed area of facility and immediately surrounding area is unremarkable. Further, the biological resources surveys showed no species of any special conservation concern were found to be present. No endangered or threatened species were found. Two indigenous (native) plant species are present, but none are considered rare in the Hilo area nor across the Hawaiian Islands. Construction activities and the presence of various animal species means the project site is dominated by common, naturalized plant species. Furthermore,

maintenance activities and application of herbicides have removed any natural flora which might have been present in the past. Thus, construction of the proposed improvements will not result in adverse impacts to the flora of this area of Hilo.

The FWS stated, since no listed plants were found within the project site, it is not expected these plants would be present or exposed to project-related activities associated with construction of the Proposed Action. Therefore, effects to federally listed plants are discountable.

Project plans and specifications would require the contractor to follow current biosecurity protocols established in PEP- Environmental Compliance Memorandum (ECM) No. 20-5 issued by the Office of Environmental Policy and Compliance and Office of Native Hawaiian Relations. The ECM establishes protocols to be followed, required by statute, or deemed appropriate, to prevent the introduction of harmful invasive species into local natural areas and native habitats on Hawai'i Island and to prevent the spread of invasive species to other U.S. land interests. These protocols are based on National Park Service, State of Hawai'i, U.S. Fish and Wildlife, U.S. Geological Survey, and the US Department of the Interior Office of Native Hawaiian Relations guidance to prevent the introduction of harmful invasive species including frogs, ants, weeds, and fungi into local natural areas and areas with native habitat, other islands in Hawaiian archipelago, or the U.S. mainland. The protocol also includes suggestions for keeping field staff safe from certain invasive species.

3.5.2. Fauna

The avian surveys identified a total of 11 species representing eight separate families through visual observation. All the avian species recorded are alien to the Hawaiian Islands. Avian diversity and densities were in keeping with the location and vegetation present within the existing Hilo WWTP. Three species Common Myna (*Acridotheres tristis*), House Sparrow (*Passer domesticus*), and Zebra Dove (*Geopelia striata*)—accounted for 58% of all birds recorded during station counts. The most frequently recorded species was Common Myna, accounting for 27% of the total number of individual birds recorded. See Appendix A.

Two terrestrial mammalian species, small Asian mongoose (*Herpestes javanicus*) and a number of pigs (*Sus scrofa),* were recorded during the surveys of the project site. Indicators of mammalian presence, such as tracks, scat, and other signs were noted during the surveys. Both species detected are alien to the Hawaiian Islands.

The findings of the mammalian survey are consistent with the location of the project and habitats present in the area. Although no rodents were recorded it is likely that some of the four established Muridae found on Hawai'i Island—roof rat (*Rattus rattus*), brown rat (*Rattus norvegicus*), Polynesian rat (*Rattus exulans hawaiiensis*), and European house mouse (*Mus musculus domesticus*)—use resources within the general area of the project site on a seasonal basis. These introduced rodents are deleterious to native ecosystems and native faunal species.

<u>Hawaiian goose</u>

The FWS noted the Hawaiian goose may be observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava

flows. In some areas Hawaiian geese are found in open, mowed fields such as near the project site. Additionally, Hawaiian geese are known to be in the nearby Keaukaha area, particularly around Lokowaka Pond.

Hawaiian seabirds

The results of the avian surveys showed all avian species detected on the Hilo WWTP project site are alien to the Hawaiian Islands. No native species were detected nor expected given the habitats present within the previously developed area of the Hilo WWTP and the immediately adjacent areas of the 14.899-acre project site.

Although not detected during the avian surveys, it is possible that small numbers of Hawaiian Petrel (*Puffinus sandwichesis*), Band-rumped Storm Petrel (*Hydrobates castro*), and Newell's Shearwater (*Puffinus newelli*) over-fly the project site between April and the middle of December each year. Studies conducted by the FWS and others indicate the primary cause of mortality to Hawaiian Petrels and Newell's Shearwaters in Hawai‘i is thought to be predation by alien mammalian species at the nesting colonies. Collision with man-made structures is considered the second-most significant cause of mortality of these listed seabird species in Hawai‘i.

A number of studies have reported nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with man-made structures and, if not killed outright, become easy targets of opportunity for feral mammals.

The surveys showed no suitable nesting habitat exists within or close to the Hilo WWTP project site for any of the three seabird species.

Hawaiian waterbirds

Hawaiian waterbirds are currently found in a variety of wetland habitats including freshwater marshes and ponds, coastal estuaries and ponds, artificial reservoirs, *Colocasia esculenta* (kalo or taro) lo‘i or patches, irrigation ditches, and sewage treatment ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. The FWS noted the project site currently does not provide these types of suitable habitats and surveys did not show any waterbirds to be present in the area.

Hawaiian hoary bat

With the exception of the Hawaiian hoary bat, no mammalian species currently protected or proposed for protection under either the federal or State of Hawai‘i endangered species programs were detected or expected during this survey.

It is probable that the Hawaiian hoary bat or *‘ōpe‘ape‘a* (*Lasiurus cinereus semotus*) overflies the Hilo WWTP project site on a seasonal basis as they have been regularly recorded in the greater Hilo area. The removal of trees can temporarily displace individual bats using those trees for roosting. As bats use multiple roosts within their home territories, the potential disturbance resulting from the removal of vegetation is likely to be minimal. However, during the pupping season, females carrying their pups may be less able to vacate a roost site if the

tree is felled. Further, adult female bats sometimes leave their pups in the roost tree while they forage. Very small pups may be unable to flee a tree that is being felled.

Impacts and Mitigation Measures

The FWS recommended the following avoidance and minimization to avoid and minimize effect to federally listed species:

- Project related ground disturbances will be limited to area within the developed WWTP site and adjacent previously cleared areas to the north, east, and south.
- No woody plants greater than 15-ft tall will be disturbed during the period from June 1-September 15.
- No barbed wire will be installed.
- Avoid nighttime construction activities during the seabird fledging season (September 15 – December 15).
- Fully shield all outdoor lights so the bulb can only be seen from below.
- Install automatic motion sensor switches 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 fledging period, September 15 through December 15.
- Incorporate the Service's Best Management Practices for Work in Aquatic Environments.

It should be noted that the Service's Best Management Practices for Work in Aquatic Environments is not applicable to the Proposed Action. As noted in Section 3.3.2,the nearest coastline is approximately 1.29 miles to the north of the Hilo WWTP project site. There are no delineated or proposed wetlands on the project site or in the area and there are no direct hydrologic connections between the project site area and nearby surface waters. Further, there are no designated streams, as shown in the USGS topographic maps.

Additionally, while having been recommended by the FWS, motion sensor switches and controls would not be feasible for treatment plant operations for safety and security purposes. All outdoor lights will be shielded and the bulb will only be seen from below.

Hawaiian goose

The FWS stated project personnel should implement the following measures if Hawaiian geese are found near the project site:

- Project personnel will not approach, feed, or disturb Hawaiian geese.

If Hawaiian geese are observed loafing or foraging within the project area during the breeding season (September through April), a biologist familiar with Hawaiian goose nesting behavior will survey for nests in and around the project area prior to the resumption of any work. A biologist will repeat surveys after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).

If a nest is discovered within a radius of 150 feet of construction site, or a previously undiscovered nest is found within the 150-ft radius after work begins the work will cease immediately, and the County will contact the Service for further guidance.

In areas where Hawaiian geese are known to be present, reduced speed limits will be posted and enforced, and project personnel and contractors will be informed of the presence of federally listed species on-site.

The FWS recommended avoidance and minimization measures for the Hawaiian goose be implemented. Hawaiian goose present and exposed to any project-related work may be temporarily disturbed but are unlikely to be measurably disrupted from their normal behaviors. Nest failure, injury, and/or mortality of Hawaiian geese are not expected to occur as a result of the Proposed Action. Therefore, effects to the Hawaiian goose are insignificant.

Hawaiian seabirds

Hawaiian seabirds may traverse the project area at night during the breeding, nesting, and fledging seasons (March 1 to December 15). The various Hilo WWTP improvements will avoid nighttime lighting and construction during the seabird fledging period, September 15 through December 15.

Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable to light attraction.

The FWS identified the following measures be implemented to avoid adverse effects to Hawaiian seabirds:

- Fully shield all outdoor lights so lighting can only be seen from below.
- Install automatic motion sensor switches 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 fledging period, September 15 through December 15.

Based on the Hilo WWTP improvements, design and implementation of the FWS recommended avoidance and minimization measures for Hawaiian seabirds, Hawaiian seabirds traversing the area at night are unlikely to be measurably disrupted from their normal behaviors. Therefore, effects to Hawaiian seabirds are insignificant.

Hawaiian waterbirds

The Hilo WWTP improvements project will implement the FWS-recommended measures as outlined above to avoid and minimize impacts to Hawaiian waterbirds. No Hawaiian waterbird habitat exists at the project site so nests, chicks, and fledglings would not be injured or killed, and adults would not be kept from the nests. Hawaiian waterbirds are unlikely to be measurably disrupted from their normal behaviors. Therefore, effects to Hawaiian waterbirds are insignificant.

Hawaiian hoary bat

To avoid adverse effects to the Hawaiian hoary bat, the project will avoid disturbing, removing, or trimming woody plants greater than 15 feet tall during the bat birthing and pup rearing season (June 1 through September 15). Additionally, the project will not use barbed wire on the security fencing. Further, adverse effects to the Hawaiian hoary bat are not expected as there are none located in most of the project site and where there are trees (coconut), the project will 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) and no barbed wire fencing will be used. If adult or volant Hawaiian hoary bats are present during construction, the human presence and disturbance will cause them to leave the site. Any nonvolant young are unlikely to be measurably disrupted from their normal behaviors.

Based on the Hilo WWTP improvements design and implementation of these avoidance and minimization measures, Hawaiian hoary bats are extremely unlikely to be injured, killed, or measurably disrupted from their normal behaviors. Therefore, effects to the Hawaiian hoary bat are insignificant.

Summary

On May 2, 2023, the FWS reply stated, based on the information provided, including biological resources surveys, implementation of the FWS recommended avoidance and minimization measures, and the FWS assessment of potential project impacts, the FWS stated that the potential for adverse effects to the Hawaiian hoary bat, Hawaiian goose, Hawaiian waterbirds, Hawaiian seabirds, and the federally listed plants are insignificant or discountable. Thus, the FWS concurred with the DOH determination that the Hilo WWTP improvements project may affect but is not likely to adversely affect these federally listed species.

3.6. Historic, Archaeological, and Cultural Resources

The project area is in the ahupua‘a of Waiākea, in the moku o loko (district) of Hilo. Waiākea is made up of roughly 95,000 acres. Once considered a region of abundant natural resources and numerous fishponds, Waiākea was also an early important political center.

In March 2023, an Archaeological Literature Review and Field Inspection was completed for the project area (See Appendix C). The purpose of the literature review and field investigation was to conduct historical, cultural, and archaeological background research and then followed by a field inspection of the Hilo WWTP 14.899-acre project site to determine the likelihood that archaeological historic properties may be affected by the project.

The literature review findings showed a number of studies have been conducted in various areas of Hilo, including an archeological reconnaissance survey conducted in 1988 which as part of the February 1989 Final Supplemental Environmental Impact Statement (FSEIS) for construction of the Hilo WWTP. The 1988 reconnaissance survey found no archeological features within the area of the project site and recommended no additional archeological work.

The March 2023 literature review indicated the project site and surrounding area were likely used for collection of natural resources, such as the prevalent *lauhala* (leaves of the *hala* plant) used for weaving, and for intermittent, small-scale agriculture, with the natural depressions in lava flows used for mulch-type agriculture.

During the mid-19th Century, sugarcane plantation agriculture and ranching came to prominence in the Waiākea Ahupua‘a. The Waiakea Sugar Plantation comprised large tracts of land in Hilo, west of Keaukaha, and other plantations and mills cropped up around the district. A 1901 land use map shows a railroad and various plantation mills in the area west of Keaukaha. The map also indicates little development in Keaukaha and the vicinity of the project area.

Land use in the project area vicinity likely continued to be focused on procurement of forest resources and small-scale intermittent, small-scale agriculture.

The various components of the project site were inspected over three separate days: 12 July 2022, 7 October 2022, and 31 January 2023. The field inspection generally consisted of a 100 percent pedestrian coverage of the project site. Photographs were taken of the general project area, as well as each of the improvement sites.

The field inspection confirmed the entire 14.899-acre WWTP project site has been subjected to extensive prior disturbance related to the development of the existing WWTP. All areas within the developed area of the WWTP and the adjacent areas have been graded and subjected to variable levels of additional development, completely altering the natural terrain. The field inspection showed no archaeological features representing potential historic properties were encountered in any portion of the project 14.899-acre project site.

Based on the absence of any surface archaeological features in the project area and the extent of prior ground disturbance of the 14.899-acre project site, the Archaeological Literature Review and Field Inspection stated additional archaeological study is not recommended for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement project.

Impacts and Mitigation Measures

On March 13, 2023, the DOH submitted the Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project report to the State Historic Preservation Division (SHPD) along with a letter

requesting SHPD's concurrence with a project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l).

On August 8, 2023, the SHPD replied (Project No.: 2023PR00356 Doc. No.: 2308SN01 Archaeology), that the submittal indicates that ground disturbance will be within areas previously disturbed during initial construction of the WWTP in the early 1990s. SPHD indicated the proposed ground disturbance will include regrading of a drainage channel around a new anaerobic digester, fence clearing along the perimeter of WWTP site, clearing of vegetation for construction staging area, and ground preparation for new facility buildings.

The SHPD concluded, based on the information provided, the SHPD concurs with DEM's HRS 6E-8 project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l) (See Appendix D).

Given the findings of the March 2023 Literature View and Field Inspection report and the findings that the absence of any surface archaeological features in the project area and the extent of prior ground disturbance, further archaeological study is not recommended for the Hilo Wastewater WWTP Rehabilitation and Replacement Project. Further, based on the SHPD concurrence of the “no historic properties affected”, there will be no adverse impact to historic resources from construction of the Proposed Action.

Notwithstanding the above findings, CoH-DEM and its contractors would be required to comply with all State and County rules and regulations regarding the preservation of archaeological and historic sites. The construction documents would include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work would cease immediately and the SHPD would be contacted, which would assess the significance of the find and recommend appropriate mitigation measures if necessary. The CoH-DEM would also consult with SHPD in compliance with State historic preservation review requirements to determine appropriate mitigation measures for the project.

3.7. Air Quality

The State of Hawai’i Department of Health (DOH), Clean Air Branch, Air Surveillance and Analysis Section, monitors the ambient air quality through a statewide monitoring network. The primary purpose of the statewide monitoring network is to measure ambient air concentrations of various gaseous and particulate air pollutants to ensure that State air quality standards are met. National ambient air quality standards (NAAQS) have been set forth by the EPA for six criteria pollutants, which include carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead (Pb), ozone (O_3), and particulate matter (PM_{10} and $PM_{2.5}$). Hawai’i has also established a state ambient air standard for hydrogen sulfide (H_2S) related to volcanic activity on Hawai’i Island. Hydrogen sulfide (H_2S) is a toxic, colorless gas with a characteristic “rotten egg” odor detectable at very low levels. It occurs naturally during the decomposition of organic matter, near geothermal sources and is also produced during certain industrial processes, including wastewater treatment facilities. Kīlauea Volcano emits over 1,000 tons of volcanic gases comprised of sulfur dioxide per day, which has persisted since 1986, and intermittently occurred since 1983. Hawai’i’s climate promotes the oxidation and hydration of sulfur dioxide to a sulfuric acid aerosol which is

partially neutralized to ammonium sulfate. The combination of these aerosols, the remaining sulfur dioxide and other volcanic vapors are locally referred to as “vog," or volcanic fog. The rate of air emissions by Kīlauea may produce vog exposures along the plume trajectory which present chronic or acute public health hazards. Kīlauea’s Pu'u ‘Ō‘ō vent, which ceased erunption in 2018, is located approximately 25 miles southwest of Hilo International Airport.

Air pollution in Hawai‘i is caused by a variety of man-made and natural sources. There are industrial sources of pollution, such as power plants and industrial/commercial activities; mobile sources, such as vehicles and buses; agricultural sources, such as previous sugar cane burning; and natural sources, such as windblown dust and volcanic activity. The DOH Clean Air Branch is responsible for regulating and monitoring pollution sources to ensure that the levels of criteria pollutants remain well below the State and federal ambient air quality standards.

Air quality on Hawai‘i Island is affected by emissions from industrial sources, vehicles, and natural sources. The major industrial source for the island is oil-fired power plants, which emit SO_2, nitrogen oxides, and particulate matter. Motor vehicles emit CO, nitrogen oxides and hydrocarbons (an ozone precursor), as well as smaller amounts of other pollutants including particulates. Also emitting sulfur dioxide ($SO_{2)}$ is the geothermal power plant Puna Geothermal Venture, which supplies about 10-20% of the island’s electricity.

Volcanic emissions of SO_2 convert into particulate sulfate, which causes a volcanic haze (vog) to blanket the area during occasional periods of southerly Kona winds. Vog concentrations are primarily dependent on the amount of volcanic emissions, the distance from the source vents, and the wind direction and speed on a given day. When trade winds are absent, which occurs most often during the winter months, East Hawai‘i, the entire island or the entire state can be impacted by vog.

The State DOH maintains 12 air monitoring stations on the island of Hawai‘i. The monitoring station closest to the project site is located at the Hilo Medical Center approximately 6.2 miles west of the project site. This station monitors sulfur dioxide (SO_2) and particulates ($PM_{2.5}$) in terms of micrograms per cubic meter (µg/m3).

The DOH 2021 monitoring data for SO_2 at Hilo Medical Center which shows that 1-hour averages greater than 75 ppb (parts per billion) for SO_2 occurred in February, September and November. The data for particulates shows no exceedances during 2021.

The Hilo WWTP has been designed to produce biogas during operation of the digesters. Inside the digester, naturally occurring microorganisms grow in the tank, breaking down organic matter which creates biogas as it decomposes. The chemical composition of biogas varies, but the primary constituents are methane and carbon dioxide.

Currently, there is one existing inoperable boiler at the Hilo WWTP, located in the existing Digester Control Building. The condition of the existing digesters is such that digester gas production is minimal. The small amount of gas that is currently produced is flared.

Impacts and Mitigation Measures

Construction activities have the potential to result in fugitive dust. Construction activities must comply with the provisions of Hawai‘i Administrative Rules, §11-60.1-33 on Fugitive

Dust. Therefore, a dust control management plan will be developed which identifies and mitigates all activities that may generate airborne, visible fugitive dust. Measures to control airborne, visible fugitive dust during construction will be incorporated into the project plans and specifications. These measures may include, but are not limited to, the following:

- Planning construction to focus on minimizing the amount of airborne, visible fugitive dust-generating materials and activities, centralizing on-site vehicular routes, and locating potential dust-generating equipment in areas of the least impact;

- Providing an adequate water source at the site prior to start-up of construction activities;

- Providing rapid growth vegetation to cover of bare areas, including slopes, from the grading phase;

- Minimizing airborne visible fugitive dust from construction vehicles on the project site and internal roadways;

- Providing reasonable dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

- Controlling airborne, visible fugitive dust from transport vehicles used to haul vehicles from the project site.

Respective contractors would be responsible for adhering to air quality standards and minimizing air quality impacts during the various phases of construction. An air pollution control permit may be required to operate certain construction equipment, such as crushers or generator sets, which may be used during construction. If required, the contractor will be responsible for obtaining an air pollution control permit from the DOH Clean Air Branch and complying with all applicable conditions and requirements. With the appropriate controls in place, no significant impacts on air quality are anticipated as a result of the Proposed Action.

Exhaust emissions created from construction activities are anticipated to have negligible impacts on air quality in the project area as the emissions would be temporary in nature, relatively small, and readily dissipated. Any potential impacts would be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60 “Air Pollution Control”. In the long-term, GHG emissions in the project area are not expected to increase proposed activities are consistent with the current and planned use of the site and would not involve any new uses that would significantly impact State GHG emissions inventories.

In the long-term, the Hilo WWTP will produce biogas during operation of the new digesters. With the new digesters, most of the biogas will be utilized in boilers to heat the sludge to the mesophilic range (68 to 113 degrees F), which is the optimal range for anaerobic microorganisms.

Excess biogas not used to fuel the boilers will be disposed of by burning it off in a flare located within Hilo WWTP. The waste gas flare is regulated by the State of Hawaii Department of Health (DOH), Clean Air Branch. Since the waste gas flare must adhere to DOH regulations, emissions from the waste gas flare are not expected to affect air quality of the Hilo area.

3.8. Odor

Hydrogen sulfide (H_2S) is the most common odor compound generated from municipal wastewater systems. The H_2S gas is generated within the collection system, in addition to other facilities, where the detention time of the untreated sewage is long and there is a lack of natural or supplemental aeration. Current regulatory requirements in wastewater systems generally focus on H_2S. H_2S gas is generated in the collection system and is known to be present at the Hilo WWTP facilities. The State standard for odor emissions, found in HAR §11-59, Ambient Air Quality Standards, Section 11-59-4(i), states, "In the ambient air, the average concentration of H_2S measured by a reference method shall not exceed 35 µg/m3 of air (25 ppb) in any 1-hour period." These standards apply at the fence line of above-ground facilities. Odors generated from the Hilo WWTP are kept at levels which meet State air quality standards. To prevent excessive odors and protect air quality, odor control system (OCS) facilities are installed at the existing Hilo WWTP facilities where necessary.'

Impacts and Mitigation Measures

The Hilo WWTP improvements are not anticipated to have a significant adverse effect on odor, as the proposed improvements and construction related emissions will meet State air quality standards. Also, odor control systems are included for the headworks, sludge blend tanks, and solids handling building equipment. Since incoming untreated flows are processed first at the headworks, the odor control systems in these facilities will help to control odor at the Hilo WWTP and the surrounding area. Lastly, the Hilo WWTP site is not near sensitive areas such as residential units and various commercial facilities. The distance between the Hilo WWTP and these areas will minimize the effects of odor on the sensitive areas.

3.9. Noise

Ambient noise in the project area is predominantly attributed to the combined noise levels from aircraft operations at the Hilo International Airport as noted by State Department of Transportation Airports Division by letter dated May 4, 2021, which states that due to proximity to the airport, the County should be aware of potential noise resulting from aircraft flight operations. There is also a potential for fumes, smoke, vibrations, odors, etc., and that these impacts may increase or decrease over time, depending on airport operations.

Impacts and Mitigation Measures

Construction of the Hilo WWTP improvements Action may result in short-term noise impacts to the surrounding environment. However, noise generated by temporary construction activities would be similar in character and intensity to the existing noise conditions and is not anticipated to have an adverse effect on overall noise levels. Any

potential impacts would be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 46 “Community Noise Control” regulations.

Residential areas in the vicinity of the project site are located approximately 1.17 mile north of the WWTP and across from Runway 26 at Hilo International Airport. At this distance, noise originating from operation of the Hilo WWTP would not create a nuisance to the residential areas. Therefore, the noise impacts from the WWTP would not be significant to these receptors.

3.10. Visual Resources

Line-of-sight views of the Hilo WWTP project site are generally obstructed from surrounding areas given the relatively flat terrain and the dense vegetation that acts as a visual barrier. View planes of the WWTP project site from the industrial type uses in the area will also generally be obstructed by the surrounding vegetation. Regardless, the views towards the WWTP project site from these surrounding areas will be obstructed by the existing vegetation.

Impacts and Mitigation Measures

No direct, indirect, or cumulative impacts on visual resources are anticipated with implementation of the Proposed Action. The new buildings will have a roof height of up to approximately 55 feet above the surrounding grade. View planes of the project site and new buildings from the surrounding area will be generally obstructed by the dense vegetation that provides a visual barrier for the area. Furthermore, the various improvements will not result in a permanent alteration of the visual character of the project area.

3.11. Traffic

Access to Hilo WWTP is via Kekuanaoa Place approximately 1.5 miles east of Airport Road and Kekuanaoa Street. Vehicle traffic on Kekuanaoa Place is generally limited to DEM personnel traveling to the WWTP on a daily basis plus contractors, suppliers and visitors. Since the WWTP is located at the end of Kekuanaoa Place, a County roadway, other traffic in the area would be very limited.

Impacts and Mitigation Measures

Due to the age of the existing plant roadways and the additional wear on the roads anticipated during construction, the existing paved areas within the developed area of the WWTP will be resurfaced or replaced. If possible, the existing pavement will be recycled to reduce the need for disposal of the old asphalt.

The Hilo WTTP improvements are not anticipated to result in a significant adverse effect on the existing traffic to the WWTP. The proposed improvements will not involve a substantial alteration or degradation on Kekuanaoa Place as the level of vehicles traveling to the WWTP is not expected to change over existing conditions.

During construction, traffic will be temporarily increase on Kekuanaoa Place as construction workers travel to the WWTP along with vehicles bring materials, equipment, and supplies to the WWTP. The contractor will be required to keep all construction vehicles

in proper operating condition and ensure that material loads are properly secured to prevent dust, debris, leakage, or other adverse conditions from affecting public roadways leading to the WWTP.

Once construction has been completed, the vehicle traffic should return to existing conditions.

The Proposed Action will consist of a mix of new facilities as well as the upgrade of existing structures, equipment, and systems at the Hilo WWTP. The constructed replacements will be situated at or nearby the current structures within the existing developed area of the WWTP and within areas previously cleared adjacent areas to the plant.

A new warehouse building may be constructed to accommodate required electrical and mechanical storage and repair, small parts and tools storage and space for operation and maintenance activities. The building is expected to have a footprint of 5,000 to up to 16,000 square feet (sf), and will include additional parking within the project site.

3.12. Aircraft Operations

The Hilo WWTP is located about 4,115 feet (about 0.78 mile) southeast of Runway 26 on Hilo International Airport on Kekuanaoa Place within a relatively undeveloped area of South Hilo. Hilo International Airport is a public use airport and contains two runways, Runway 8-26, 9,800 feet long by 150 feet wide, and Runway 3-21, 5,600 feet long by 150 feet wide. The Airport includes a control tower, air cargo facilities, a passenger terminal building, car rental facilities and a general aviation area. Tour helicopter operations are also conducted from Hilo International Airport. Currently, interisland flights are the only passenger service.

In July 2023, a total of 431 aircraft operations were conducted during the month.

Impacts and Mitigation Measures

The replacement facilities and other improvements will be sited within areas of the existing plant or in adjacent areas that were previously cleared during construction of the WWTP in the early 1990s. Roof heights of new structures will be up to approximately 55 feet above the surrounding grade.

Given the Hilo WWTP proximity to Hilo International Airport, if necessary, a Federal Aviation Administration (FAA) Form 7460.1, Objects Affecting Navigable Airspace will be filed to comply with Federal Aviation Regulation Part 77. FAA 7460.1 allows the FAA to determine in advance if the potential hazardous effect of the various improvements on air navigation. Filing the form will also allow the FAA to set forth mitigation measures to prevent or to minimize adverse impacts to navigable airspace. The use of cranes needs to be included when filing the Form 7460.1

3.13. Socio-Economic Characteristics

In September 2022, the State of Hawai‘i Department of Business, Economic Development and Tourism released 2021 population estimates for the state and counties. In addition, the U.S. Census Bureau provides the American Community Survey (ACS), which updates selected

demographic, social, and economic information for state and counties for various years. The ACS data includes total population, age, racial composition, and economic information, including employment and household income by Census Designated Place for locations in Hawai‘i County. The most recent version of the ACS is the 2021 5-Year Estimates released in December 2022 (See Table 3-1).

The 2020 Census showed the Hawai'i County total population 200,629 persons and the 2021 estimates shows a total population of 202,906 persons, which represents an increase of about 1.1 percent. As a comparison, the total state population in 2020 was 1,445,271 persons and the 2021 estimate was 1,441,553 persons, a decrease of about 0.25 percent.

The Hilo WWTP is located within the Hilo Census Designated Place (CDP), the largest population center on the island. The 2020 population for Hilo was 44,186 persons and the 2021 ACS estimate was 46,559 persons, an increase of about 5.4 percent. Thus, Hilo has grown at a faster rate than the county and remains the largest population center.

The Hilo CDP has a younger population than the County of Hawai’i. The median age of the population for the Hilo CDP was 39.9 years compared to 44.0 years for the County. By racial mix, the Hilo CDP has a higher percentage of Asians (31.3 percent) than the County (22.1 percent) and those of two or more races (38.0 percent) compared to the County (29.8 percent). The Hilo CDP has a lower percentage of Whites (18.2 percent)) compared to the County (32.6 percent). The Hilo CDP has a lower Native Hawaiian or other Pacific Islander 11.1 percent compared to the County 12.1 percent. Table 3-1 shows various demographic characteristics for Hilo and the County.

Hilo has a higher proportion of residents that have a bachelor degree 21.8 percent than the County 19.4 percent. Also, Hilo has a higher portion of those with a graduate to professional degree 12.3 percent than the County 10.7 percent. From an economic perspective, Hilo has higher portion with household incomes $100,000 or more 34.3 percent compared to the County 32.5 percent. Also, the median household income for Hilo is $70,356 compared to the County $68,399.

Lastly, Hilo had a higher proportion of employment in education and health care 27.1 percent than the County 21.7 percent.

In the short term, construction of the Hilo WWTP improvements would require a contractor or contractors and their subcontractors. Construction contract documents would reference HRS 103B, which requires the contractor (including subcontractors) to include not less than 80 percent Hawai‘i residents in the work force. This would limit the importation of workers from outside the local area and the associated increase in demand for local housing.

The construction of the WWTP improvements would generate employment as the contractor would need workers to undertake construction of the various facilities. This employment would generate wages and salaries paid to the contractor and subcontractor work forces. The wages and salaries paid to the work force would in turn generate purchases of goods and services, which would result in taxes paid to the State of Hawai‘i. In addition, the contractor and their subcontractors would need to purchase equipment, supplies, and materials, some of which would be purchased from local suppliers and vendors. Direct purchases of equipment, supplies, and materials by the contractor would also generate taxes. Overall, the Hilo WWTP improvements

would result in positive employment benefits which would result in higher levels of income and overall economic benefits to the local economy.

The Proposed Action is not likely to directly impact long-term employment or education trends because the wastewater operator would likely be based in Hilo or Kona, meaning the project would not involve long-term relocation of any staff to Hilo.

A subset of social resources is environmental justice. Environmental justice considers sensitive populations, such as children, minorities, and low-income communities. Sensitive populations are identified in two Executive Orders (EOs):

- EO 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, serves to avoid the disproportionate placement of adverse environmental, economic, social, or health impacts from federal actions and policies on minority and low-income populations.

- EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, states that federal agencies will identify and address environmental health and safety risks from their activities, policies, or programs that may disproportionately affect children.

For purposes of this assessment, and to correspond with the available ACS demographic characteristic data, “low income” is defined as having a household income of less than $24,999; “minority” is defined as any race population other than White; and “children” is defined as the “Under 5 to 19” age category.

Despite the relatively high proportions of minority, low-income, and children residents in Hilo compared to the County, the construction of the Hilo WWTP improvements would not result in disproportionately high and adverse human health or environmental effects on these sensitive populations. As discussed in Section 2.3.1 and Section 3.14.2, the location and the design of the proposed facilities would minimize odor and air quality impacts.

Construction of the improvements would result in intermittent and unavoidable noise from construction vehicles and equipment within the area of the WWTP. However, as discussed in Section 3.18.2, construction activities would need to comply with provisions of HAR 11-46 (Community Noise Control). This includes obtaining a noise permit for any activities that would generate noise exceeding the permissible sound levels specified in HAR 11-46. The permit would limit excessive noise sources to daytime hours; would require the use of best available control technology to control noise levels from excessive noise sources; and would require the applicant to notify affected members of the public in advance of any planned nighttime construction activity (which must not exceed the permissible sound levels). Overall, the construction of the improvements is expected to result in positive human health and environmental effects to the Hilo area.

Table 3-1: Hilo CDP and Hawai'i County Demographic Characteristics				
	Hilo		Hawai'i County	
Demographic Characteristics	Total	Percent	Total	Percent
Total Population	46,559		200,468	
Under 5 to 19 years	11,634	25.0	47,349	23.6
20 to 34 years	8,752	18.8	33,056	16.5
35 to 59 years	12,866	27.6	61,169	30.5
60 to 74 years	8,841	19.0	43,854	21.9
75 years and over	4,466	9.6	15,040	7.5
Median age	39.9		43.0	
Race				
White	8,472	18.2	65,306	32.6
African America/American Indian/Alaska Native	369	0.8	2,453	1.2
Chinese	955	2.0	2,911	1.5
Filipino	3,073	6.6	19,111	9.5
Japanese	8,670	18.6	16,179	8.1
Other Asian	1,888	4.1	6,070	3.0
Native Hawaiian	4,276	9.2	18,333	9.2
Other Pacific Islander	875	1.9	5,765	2.9
Some Other Race	282	0.6	4,586	2.2
2 or more Races	17,600	38.0	59,754	29.8
Social Characteristics				
Less than 9th grade	553	1.7	3,280	2.3
High School to HS graduate	10,216	31.7	49,116	34.3
Some college to associate degree	10,488	32.5	47,704	33.3
Bachelor degree	7,036	21.8	27,845	19.4
Graduate to professional degree	3,959	12.3	15,395	10.7
Household Income Characteristics				
Less than $24,999	3,313	20.5	13,462	18.9
$25,000 to $49,999	2,693	16.6	13,039	18.3
$50,000 to $99,999	4,623	28.6	21696	30.4
$100,000 to $199,999	4,409	27.2	17,775	24.9
$200,000 or more	1,151	7.1	5,430	7.6
Median household income	$70,356		$68,399	
Employment Characteristics				
Agriculture, forestry fishing and hunting	686	3.3	4,357	4.9
Construction	1,420	6.8	7,051	7.9
Manufacturing and wholesale	1,029	5.0	3,920	4.4
Retail trade	2,457	11.8	10,881	12.2
Transportation, warehousing and utilities	1,040	5.0	3,679	4.1
Information tech finance and real estate	1,350	6.5	6,140	6.9
Professional, scientific and technical services	1,743	8.4	10,366	11.6
Education and health care	5,631	27.1	19,354	21.7
Arts, entertainment. Recreation	2,637	12.8	14,078	15.8
Other services, public administration	2,763	13.3	9,493	10.6

3.14. Public Services and Facilities

3.14.1. Police, Fire, and Medical Services

Police: Police protection to Hilo is provided by the Hawai‘i Police Department. The project site is part of the South Hilo, Patrol District 1 that covers the area between Halakau in the north, to the mid-point of Kanoelehua Avenue between Hilo and Kea‘au in the south, to Saddle Road in the west. The area is served by the main police station located on Kapi‘olani Street near downtown Hilo, approximately 3.6 miles from the project area.

Fire: Fire prevention and protection is provided by the Hawai‘i Fire Department. Fire Department personnel also include paramedics who respond to medical as well as fire emergencies. The Hawai‘i County Fire Department Kawailani Fire Station provides fire protection and suppression services in Waiākea. Backup support is provided by the Central Fire Station located 3.6 miles away in Hilo, the Kaumana Fire Station located 5.3 miles away, the Waiākea Fire Station located 3 miles away in Keaukaha, and the Haihai fire station is located 5.2 miles away from the project site.

Medical: Hilo Medical Center located approximately 6 miles west of the project site on Waiānuenue Avenue is the primary health care facility serving the South Hilo District.

Several medical and healthcare facilities are located along Waiānuenue Avenue in proximity to the project site including Kaiser Permanente, Saint Francis Dialysis Center, Hale Anuenue Restorative Care Center, Hawai‘i Pacific Oncology Center (owned by Hilo Medical Center), and The Arc of Hilo and Hospice of Hilo.

Impacts and Mitigation Measures

Police: The Hilo WWTP improvements would not result in an increase in demand for police protection services. No direct, secondary or cumulative impacts to police protection are anticipated or expected, and no mitigation measures are necessary or recommended. Further, on September 26, 2023, in response to the Early Consultation request, the Police Department responded they do not see any significant impacts to traffic and/or public safety concerns from the Proposed Action.

Fire: The Hilo WWTP improvements would not result in an increase in demand for fire protection services. The proposed improvements will comply with all applicable County design standards to meet health and fire safety requirements, including the provision of fire apparatus access roads that meet county requirements and an accessible and reliable water source. No direct, secondary or cumulative impacts on fire protection are anticipated or expected, and no mitigation measures are necessary or recommended.

Medical: The Hilo WWTP improvements would not result in an increase in demand for health and emergency services. No direct, secondary or cumulative impacts on emergency services are anticipated or expected, and no mitigation measures are necessary or recommended.

3.15. Infrastructure and Utilities

3.15.1. Water System

Existing potable water resources for the Hilo area come from ground water (approximately 65.5 percent) and surface water (approximately 34.5 percent). The water system in the Hilo area is served by one main system, and four smaller systems, which consumes a daily average of 5.49 million gallons of water from five surface systems and five deep well sources. The surface sources are the Waiakea-Uka Tunnel, the Olaa Flume Spring, Lyman Spring, Wailuku River-Hookelekele Stream, and Kaohama Stream. Three of the smaller systems use deep well sources, while the one remaining source draws its supply from surface water. Industrial and Commercial sources draw water from smaller wells.

The County of Hawai'i Department of Water Supply (DWS) provides potable water service to the existing Hilo WWTP through a water main located along Kekuanoaa Place.

Impacts and Mitigation Measures

The Hilo WWTP improvements will include two new facilities which will include restroom and locker room facilities requiring potable water services. It is expected that demand for potable water used for WWTP washdown purposes will also increase. The total water demand from these facilities should not exceed the existing available water service to the Hilo WWTP site.

3.15.2. Wastewater System

The Project Action will occur at the Hilo WWTP located on State-owned land that surrounds the airport. The plant design capacity is 5 million gallons per day average daily flow. At present, the Hilo WWTP is operating well below its design capacity.

Recent condition assessments and a resulting master plan have identified a range of critical system deficiencies within the WWTP which threaten reliable treatment and the ability to provide a safe working environment for operations and maintenance staff. These deficiencies include severe concrete deterioration, malfunctioning equipment, and safety hazards. In addition, influent five-day biochemical demand (BOD) and total suspended solids (TSS) concentrations are greater than those which served as the basis of the original plant design. Moreover, the existing condition of the facility poses a threat to the safe and normalized operations of the WWTP itself. As the Hilo WWTP is the only WWTP that serves the region, it is considered to be critical infrastructure. Should the facility experience some form of facility/equipment failure, cessation of WWTP operations could constitute a risk to public health.

Impacts and Mitigation Measures

In response to these condition assessments, the Proposed Action will undertake rehabilitation, replacement, and related improvements to critical facilities and treatment processes at the WWTP. As a result, the Proposed Action will improve plant facilities and restore the original capacity of 5.0 mgd average dry weather flow.

The WWTP will remain operational during construction activities. Staging areas and construction sequencing will be designed to avoid impacting ongoing plant operations to

the extent practical. Overall, the Proposed Action will have a positive impact on the wastewater system of Hilo. The Proposed Action will improve the operation and reliability of the existing WWTP.

3.15.3. Drainage System

The existing WWTP is not served by County drainage facilities. Runoff from rainfall currently sheet flows and percolates within the upper layers of the site. Some ponding may occur at natural low points in the topography during and immediately after heavy rainstorm events. However, this water eventually infiltrates into the ground once heavy event has subsided.

Impacts and Mitigation Measures

Construction of the Hilo WWTP improvements would increase the area of impervious surfaces at the project site. All development generated runoff would be managed as determined through a drainage study conducted during the design phase. The final drainage system design would be coordinated with CoH – Department of Public Works (DPW) prior to construction.

3.15.4. Solid Waste

Solid waste generated at the WWTP is taken to the East Hawai‘i Regional Sort Station (EHRSS). From there, the solid waste is transported to the West Hawai‘i Sanitary Landfill (WHSL) in Pu‘uanahulu for final disposal.

Impacts and Mitigation Measures

Construction of the Proposed Action will generate some solid waste typical of this type of construction-related activity. Construction-related solid wastes generated will be a short-term impact and consist primarily of vegetation, demolished concrete, rocks, and other debris created from clearing, excavation, grading, and demolition activities. Demolition of existing structures no longer in service will also generate additional solid waste. The contractor will be required to properly dispose of all debris generated from construction in conformance with County and State regulations.

3.15.5. Electrical and Communication Systems

The Hawai‘i Electric Light Company (HELCO) provides electric power on Hawai‘i Island. With a mix of geothermal, solar, wind and hydroelectricity, HECO had a renewable percentage of 57 percent in 2017 (Hawaiian Electric, n.d.). Electricity near the project site is provided by a 12 kV line that was recently installed within Ho‘olaulima Road in conjunction with the construction of the County’s Mass Transit Authority Baseyard located to the south. A fiber optic cable was also installed for that project and provides telecommunication service.

impacts and Mitigation Measures

No short or long-term significant impacts on electrical and communication systems are anticipated to result from the development and operation of the Proposed Action and improvements.

Appropriate coordination with these utility companies will be conducted during design and construction of the Proposed Action to minimize disruption to their services or activities.

CHAPTER 4: RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

4. RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

Pursuant to Section 11-200.1-24, HAR, Chapter 4 describes the relationship of the Proposed Action to various "*land use and natural or cultural resource plans, policies, and controls for the affected area*." This Chapter discusses how the Hilo WWTP Rehabilitation and Replacement Project "*may conform or conflict with objectives and specific terms of approved or 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 proposing agency (County of Hawai'i Department of Environmental Management) *"…has decided to proceed, notwithstanding the absence of full reconciliation."*

To facilitate describing the relationships of the Proposed Action to the numerous land use and natural or cultural resource plans, policies, and controls for the affected area, some of those plans, policies, and controls are presented in tabular form, and are described with text and/or the following letter code:

S = Supportive, NS = Not Supportive, N/A = Not Applicable

4.1. State of Hawai'i Land Use Plans and Policies

4.1.1. Hawai'i State Plan

The Hawai'i State Plan, Chapter 226, Hawai'i Revised Statutes (HRS), as amended, provides goals, objectives, policies, and priorities for the State. The purpose of the Hawai'i State Plan is to set forth a plan that shall serve as a guide for the future long-range development of the State; 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 State Plan is divided into three sections. Part 1 is Overall Theme, Goals, Objectives and Policies. Part 2 is Planning Coordination and Implementation. Part 3 is Priority Guidelines. The Proposed Action's consistency with applicable goals, objectives and policies of Part 1 is discussed in Table 4-1, and an assessment of conformance with Part 3 is discussed in Table 4-2. Part 2 of the State Plan, which primarily covers internal government affairs, is not related to the Proposed Action. Table 4-1 shows the Hilo WWTP: "S" supports the goal; "N/S" not support; "N/A" not applicable.

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
§226-4 State goals. In order to ensure, for present and future generations, those elements of choice and mobility that ensure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:			
(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai‘i’s present and future generations.	**X**		
(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.	**X**		
(3) Physical, social, and economic well-being, for individuals and families in Hawai‘i, that nourishes a sense of community responsibility, of caring, and of participation in community life.	**X**		
Discussion: The Proposed Action will support the State’s goals, for present and future generations, to ensure individuals and groups may approach their desired levels of self-reliance and self-determination. The Proposed Action involved the rehabilitation and replacement of existing plant facilities and construction of new facilities will ensure wastewater treatment efficiency for present and future generations. A well-maintained wastewater treatment plant ensures the proper disposal of wastewater will reduce pollution risks and support the overall economic stability and growth of the region. Moreover, the Proposed Action will lead to improved treatment processes, reducing the impact on the surrounding environment and enhancing the stability of natural systems. While the primary focus of the Proposed Action is on environmental and public health aspects, it will also indirectly contribute to the well-being of communities by ensuring the availability of clean water resources and protecting public health.			
§226-5 Objectives and policies for population. (a) It shall be the objective in planning for the State's population to guide population growth to be consistent with the achievement of physical, economic, and social objectives contained in this chapter. To achieve the population objective, it shall be the policy of this State to:			
(1) Manage population growth statewide in a manner that provides increased opportunities for Hawai‘i's people to pursue their physical, social, and economic aspirations while recognizing the unique needs of each county.			**X**
(2) Encourage an increase in economic activities and employment opportunities on the Neighbor Islands consistent with community needs and desires.			**X**
(3) Promote increased opportunities for Hawai‘i's people to pursue their socio-economic aspirations throughout the islands.			**X**
(4) Encourage research activities and public awareness programs to foster an understanding of Hawai‘i's limited capacity to accommodate population needs and to address concerns resulting from an increase in Hawai‘i's population.	**X**		
(5) Encourage federal actions that will promote a more balanced distribution of immigrants among the states, provided that such actions do not prevent the reunion of immediate family members.			**X**
(6) Pursue an increase in federal assistance for states with a greater proportion of foreign immigrants relative to their state's population.			**X**

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(7) Plan the development and availability of land and water resources in a coordinated manner so as to provide for the desired levels of growth in each geographic area.	X		
Discussion: The Proposed Action will support the objectives and policies of the State for population. The Proposed Action will not significantly contribute to the County's population growth. The Proposed Action will generate employment opportunities both in the short-term construction phase and the long-term operation, providing individuals with a means to pursue their socio-economic aspirations.			
§226-6 Objectives and policies for the economy— in general. (a) Planning for the State's economy in general shall be directed toward achievement of the following objectives: (1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai‘i's people. (2) A steady growing and diversified economic base that is not overly dependent on a few industries, and includes the development and expansion of industries on the neighbor islands. (b) To achieve the general economic objectives, it shall be the policy of this State to:			
(1) Promote and encourage entrepreneurship within Hawai‘i by residents and nonresidents of the State.			X
(2) Expand Hawai‘i's national and international marketing, communication, and organizational ties, to increase the State's capacity to adjust to and capitalize upon economic changes and opportunities occurring outside the State.			X
(3) Promote Hawai‘i as an attractive market for environmentally and socially sound investment activities that benefit Hawai‘i's people.			X
(4) Transform and maintain Hawai‘i as a place that welcomes and facilitates innovative activity that may lead to commercial opportunities.			X
(5) Promote innovative activity that may pose initial risks, but ultimately contribute to the economy of Hawaii.			X
(6) Seek broader outlets for new or expanded Hawai‘i business investments.			X
(7) Expand existing markets and penetrate new markets for Hawai‘i's products and services.			X
(8) Assure that the basic economic needs of Hawai‘i's people are maintained in the event of disruptions in overseas transportation.			X
(9) Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.	X		
(10) Encourage the formation of cooperatives and other favorable marketing arrangements at the local or regional level to assist Hawai‘i's small scale producers, manufacturers, and distributors.			X
(11) Encourage labor-intensive activities that are economically satisfying and which offer opportunities for upward mobility.	X		
(12) Encourage innovative activities that may not be labor-intensive, but may otherwise contribute to the economy of Hawaii.			X

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(13) Foster greater cooperation and coordination between the public and private sectors in developing Hawai‘i's employment and economic growth opportunities.			X
(14) Stimulate the development and expansion of economic activities which will benefit areas with substantial or expected employment problems.			X
(15) Maintain acceptable working conditions and standards for Hawai‘i's workers.	X		
(16) Provide equal employment opportunities for all segments of Hawai‘i's population through affirmative action and non-discrimination measures.			X
(17) Stimulate the development and expansion of economic activities capitalizing on defense, dual-use, and science and technology assets, particularly on the neighbor islands where employment opportunities may be limited.			X
(18) Encourage businesses that have favorable financial multiplier effects within Hawai‘i's economy, particularly with respect to emerging industries in science and technology.			X
(19) Promote and protect intangible resources in Hawai‘i, such as scenic beauty and the aloha spirit, which are vital to a healthy economy.			X
(20) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new, potential growth industries in particular.			X
(21) Foster a business climate in Hawai‘i- including attitudes, tax and regulatory policies, and financial and technical assistance programs-that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.			X
Discussion: The Proposed Action will support the objectives and policies of the State for the economy – in general. The Proposed Action will contribute to the local economy on Hawai’i Island, directly and indirectly, during the construction period. The construction of the Proposed Action will create expenditures, a portion which will be used towards the purchase of material from local suppliers. The employment of a local workforce will enable the use of income for local retail businesses. Furthermore, implementation of the Proposed Action will provide necessary work experience to help build the local skilled labor workforce. The Proposed Action will maintain/improve acceptable working conditions and standards by adhering to relevant labor laws, regulations, and industry best practices in terms of worker safety.			
§226-7 Objectives and policies for the economy— agriculture. (a) Planning for the State's economy with regard to agriculture shall be directed towards achievement of the following objectives: (1) Viability of Hawaii's sugar and pineapple industries. (2) Growth and development of diversified agriculture throughout the State. (3) An agriculture industry that continues to constitute a dynamic and essential component of Hawaii's strategic, economic, and social well-being To achieve the agriculture objectives, it shall be the policy of this State to:			
(1) Establish a clear direction for Hawaii's agriculture through stakeholder commitment and advocacy.			X
(2) Encourage agriculture by making the best use of natural resources.			X

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(3) Provide the governor and the legislature with information and options needed for prudent decision-making for the development of agriculture.			X
(4) Establish strong relationships between the agricultural and visitor industries for mutual marketing benefits.			X
(5) Foster increased public awareness and understanding of the contributions and benefits of agriculture as a major sector of Hawai‘i's economy.			X
(6) Seek the enactment and retention of federal and state legislation that benefits Hawai‘i's agricultural industries.			X
(7) Strengthen diversified agriculture by developing an effective promotion, marketing, and distribution system between Hawai‘i's food producers and consumers in the State, nation, and world.			X
(8) Support research and development activities that strengthen economic productivity in agriculture, stimulate greater efficiency, and enhance the development of new products and agricultural by-products.			X
(9) Enhance agricultural growth by providing public incentives and encouraging private initiatives.			X
(10) Assure the availability of agriculturally suitable lands with adequate water to accommodate present and future needs.			X
(11) Increase the attractiveness and opportunities for an agricultural education and livelihood.			X
(12) In addition to the State's priority on food, expand Hawai‘i's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.			X
(13) Promote economically competitive activities that increase Hawai‘i's agricultural self-sufficiency, including the increased purchase and use of Hawaii-grown food and food products by residents, businesses, and governmental bodies as defined under section 103D-104.			X
(14) Promote and assist in the establishment of sound financial programs for diversified agriculture			X
(15) Institute and support programs and activities to assist the entry of displaced agricultural workers into alternative agricultural or other employment.			X
(16) Facilitate the transition of agricultural lands in economically non-feasible agricultural production to economically viable agricultural uses.			X
(17) Perpetuate, promote, and increase use of traditional Hawaiian farming systems, such as the use of loko i‘a, māla, and irrigated lo‘i, and growth of traditional Hawaiian crops, such as kalo, ‘uala, and ‘ulu.			X
(18) Increase and develop small-scale farms.			X
Discussion: The Proposed Action will not impact any of the objectives and policies outlined above for the economy related to agriculture.			
226-8 Objective and policies for the economy— visitor industry. (a) Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawai‘i's economy. (b) To achieve the visitor industry objective, it shall be the policy of this State to:			

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(1) Support and assist in the promotion of Hawai‘i's visitor attractions and facilities.			X
(2) Ensure that visitor industry activities are in keeping with the social, economic, and physical needs and aspirations of Hawai‘i's people.			X
(3) Improve the quality of existing visitor destination areas by utilizing Hawaii's strengths in science and technology.			X
(4) Encourage cooperation between the public and private sectors in developing and maintaining well-designed, adequately serviced visitor industry and related developments which are sensitive to neighboring communities and activities.			X
(5) Develop the industry in a manner that will continue to provide new job opportunities and steady employment for Hawai‘i's people.			X
(6) Provide opportunities for Hawai‘i's people to obtain job training and education that will allow for upward mobility within the visitor industry.			X
(7) Foster a recognition of the contribution of the visitor industry to Hawai‘i's economy and the need to perpetuate the aloha spirit.			X
(8) Foster an understanding by visitors of the aloha spirit and of the unique and sensitive character of Hawai‘i's cultures and values.			X
Discussion: The Proposed Action will not impact any of the objectives and policies outlined above for the economy related to the visitor industry.			
§226 9 Objective and policies for the economy— federal expenditures. (a) Planning for the State's economy with regard to federal expenditures shall be directed towards achievement of the objective of a stable federal investment base as an integral component of Hawai‘i’s economy. (b) To achieve the federal expenditures objective, it shall be the policy of this State to:			
(1) Encourage the sustained flow of federal expenditures in Hawai‘i that generates long-term government civilian employment.			X
(2) Promote Hawaii's supportive role in national defense, in a manner consistent with Hawaii's social, environmental, and cultural goals by building upon dual-use and defense applications to develop thriving ocean engineering, aerospace research and development, and related dual-use technology sectors in Hawaii's economy.			X
(3) Promote the development of federally supported activities in Hawai‘i that respect statewide economic concerns, are sensitive to community needs, and minimize adverse impacts on Hawai‘i's environment.	X		
(4) Increase opportunities for entry and advancement of Hawai‘i's people into federal government service.			X
(5) Promote federal use of local commodities, services, and facilities available in Hawai‘i.	X		
(6) Strengthen federal-state-county communication and coordination in all federal activities that affect Hawai‘i.			X
(7) Pursue the return of federally controlled lands in Hawai‘i that are not required for either the defense of the nation or for other purposes of national importance, and promote the mutually beneficial exchanges of land between federal agencies, the State, and the counties.			X

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
Discussion: The Proposed Action will support the objectives and policies for the economy related to federal expenditures. The various improvements will be primarily funded by the County and may also utilize federal funds through the State of Hawai'i Department of Health (DOH) Clean Water State Revolving Fund (CWSRF) Program.			
§226-10 Objective and policies for the economy— potential growth and innovative activities. (a) Planning for the State's economy with regard to potential growth and innovative activities shall be directed towards achievement of the objective of development and expansion of potential growth and innovative activities that serve to increase and diversify Hawai‘i's economic base. (b) To achieve the potential growth activity objective, it shall be the policy of this State to:			
(1) Facilitate investment and employment growth in economic activities that have the potential to expand and diversify Hawaii's economy, including but not limited to diversified agriculture, aquaculture, renewable energy development, creative media, health care, and science and technology-based sectors.			X
(2) Facilitate investment in innovative activity that may pose risks or be less labor-intensive than other traditional business activity, but if successful, will generate revenue in Hawai‘i through the export of services or products or substitution of imported services or products.			X
(3) Encourage entrepreneurship in innovative activity by academic researchers and instructors who may not have the background, skill, or initial inclination to commercially exploit their discoveries or achievements.			X
(4) Recognize that innovative activity is not exclusively dependent upon individuals with advanced formal education, but that many self-taught, motivated individuals are able, willing, sufficiently knowledgeable, and equipped with the attitude necessary to undertake innovative activity.			X
(5) Increase the opportunities for investors in innovative activity and talent engaged in innovative activity to personally meet and interact at cultural, art, entertainment, culinary, athletic, or visitor-oriented events without a business focus.			X
(6) Expand Hawai‘i's capacity to attract and service international programs and activities that generate employment for Hawai‘i's people.			X
(7) Enhance and promote Hawai‘i's role as a center for international relations, trade, finance, services, technology, education, culture, and the arts.			X
(8) Accelerate research and development of new energy-related industries based on wind, solar, ocean, and underground resources and solid waste.			X
(9) Promote Hawai‘i's geographic, environmental, social, and technological advantages to attract new economic activities into the State.			X
(10) Provide public incentives and encourage private initiative to attract new industries that best support Hawai‘i's social, economic, physical, and environmental objectives.			X
(11) Increase research and the development of ocean related economic activities such as mining, food production, and scientific research.			X
(12) Develop, promote, and support research and educational and training programs that will enhance Hawai‘i's ability to attract and develop economic activities of benefit to Hawai‘i.			X
(13) Foster a broader public recognition and understanding of the potential benefits of new, growth oriented industry in Hawai‘i.			X

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(14) Encourage the development and implementation of joint federal and state initiatives to attract federal programs and projects that will support Hawaii's social, economic, physical, and environmental objectives.			X
(15) Increase research and development of businesses and services in the telecommunications and information industries.			X
(16) Foster the research and development of nonfossil fuel and energy efficient modes of transportation			X
(17) Recognize and promote health care and health care information technology as growth industries.			X
Discussion: The Proposed Action will not impact any of the objectives and policies outlined above for the economy related to potential growth and innovative activities.			
226-10.5 Objectives and policies for the economy— information industry. (a) Planning for the State's economy with regard to telecommunications and information technology shall be directed toward recognizing that broadband and wireless communication capability and infrastructure are foundations for an innovative economy and positioning Hawai‘i as a leader in broadband and wireless communications and applications in the Pacific Region. (b) To achieve the information industry objective, it shall be the policy of this State to:			
(1) Promote efforts to attain the highest speeds of electronic and wireless communication within Hawai‘i and between Hawai‘i and the world, and make high speed communication available to all residents and businesses in Hawaii			X
(2) Encourage the continued development and expansion of the telecommunications infrastructure serving Hawai‘i to accommodate future growth and innovation in Hawaii's economy.			X
(3) Facilitate the development of new or innovative business and service ventures in the information industry which will provide employment opportunities for the people of Hawaii.			X
(4) Encourage mainland- and foreign-based companies of all sizes, whether information technology-focused or not, to allow their principals, employees, or contractors to live in and work from Hawaii, using technology to communicate with their headquarters, offices, or customers located out-of-state.			X
(5) Encourage greater cooperation between the public and private sectors in developing and maintaining a well-designed information industry.			X
(6) Ensure that the development of new businesses and services in the industry are in keeping with the social, economic, and physical needs and aspirations of Hawaii's people.			X
(7) Provide opportunities for Hawaii's people to obtain job training and education that will allow for upward mobility within the information industry.			X
(8) Foster a recognition of the contribution of the information industry to Hawaii's economy.			X
(9) Assist in the promotion of Hawai‘i as a broker, creator, and processor of information in the Pacific.			X
Discussion: The Proposed Action will not impact any of the objectives or policies outlined above for the economy related to telecommunications and information technology industries.			

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
§226-11 Objectives and policies for the physical environment— land-based, shoreline, and marine resources. (a) The land-based, shoreline, and marine resources objectives are: (1) Prudent use of Hawai‘i's land-based, shoreline, and marine resources. (2) Effective protection of Hawai‘i's unique and fragile environmental resources. (b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to:			
(1) Exercise an overall conservation ethic in the use of Hawai‘i's natural resources.			X
(2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.	X		
(3) Take into account the physical attributes of areas when planning and designing activities and facilities.	X		
(4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.	X		
(5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.	X		
(6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai‘i.	X		
(7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.			X
(8) Pursue compatible relationships among activities, facilities, and natural resources.	X		
(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.			X
Discussion: The Proposed Action will support the objective and policies for the physical environment related to land-based, shoreline, and marine resources. The Project Site is located at the edge of the urban environment. The Proposed Action plans to replace existing facilities which have reached the end of their useful economic life and to construct needed replacement and new facilities. The improvements will provide a facility for present and future generations. All native plants found on the site are relatively common. No significant adverse impacts on threatened or endangered species or their habitat are anticipated as a result of the Proposed Action. The project site is located approximately 1.3 miles away from the nearest coastline. Due to the permeability of the ‘a‘a and pāhoehoe lava beneath the soil at the project site, there are very little surface water resources in the area. There are no delineated or proposed wetlands in the project area and there are no direct hydrologic connections between the project area and nearby surface waters. No impacts to these resources are anticipated.			
§226-12 Objective and policies for the physical environment— scenic, natural beauty, and historic resources. (a) Planning for the State’s physical environment shall be directed towards achievement of the objective of enhancement of Hawai‘i’s scenic assets, natural beauty, and multi-cultural/historical resources (b) To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to:			
(1) Promote the preservation and restoration of significant natural and historic resources.	X		

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.			X
(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.	X		
(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawai‘i's ethnic and cultural heritage.	X		
(5) Encourage the design of developments and activities that complement the natural beauty of the islands.	X		
Discussion: The Proposed Action will support the objectives and policies for the physical environment related to scenic, natural beauty, and historic resources. The Proposed Action will maintain the physical and scenic attributes of the project area. The nearest residential area lies across the runway, approximately one mile to the north of the WWTP. The intervening vegetation and the distance provide a visual buffer between the residential area and the WWTP.			
§226-13 Objectives and policies for the physical environment— land, air, and water quality. (a) Planning for the State’s physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives: (1) Maintenance and pursuit of improved quality in Hawai‘i’s land, air, and water resources. (2) Greater public awareness and appreciation of Hawai‘i’s environmental resources. (b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:			
(1) Foster educational activities that promote a better understanding of Hawai‘i's limited environmental resources.			X
(2) Promote the proper management of Hawai‘i's land and water resources.	X		
(3) Promote effective measures to achieve desired quality in Hawai‘i's surface, ground, and coastal waters.	X		
(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai‘i's people.	X		
(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.			X
(6) Encourage design and construction practices that enhance the physical qualities of Hawai‘i's communities.			X
(7) Encourage urban developments in close proximity to existing services and facilities.	X		
(8) Foster recognition of the importance and value of the land, air, and water resources to Hawai‘i's people, their cultures and visitors.			X
Discussion: The Proposed Action supports the objectives and policies for the physical environment related to land, air, and water quality. The Proposed Action will improve plant facilities to ensure wastewater treatment efficiency to maintain water resources quality for present and future generations. This will enhance the health and well-being of Hawai’i’s people. Construction of the proposed action would involve land disturbing activities, which may result in short-term soil erosion impacts and generate temporary increases in fugitive dust. Construction activities must comply with the provisions of Hawai‘i Administrative Rules, §11-60.1-33 on Fugitive Dust. Therefore, a dust control management			

Table 4-1: The Hawai'i State Plan	S	NS	N/A
plan will be developed which identifies and mitigates all activities that may generate airborne, visible fugitive dust. Measures to control airborne, visible fugitive dust from the road areas and during the various phases of construction will be incorporated into the project plans and specifications. Respective contractors would be responsible for adhering to air quality standards and minimizing air quality impacts during the various phases of construction. An air pollution control permit may be required to operate certain construction equipment, such as crushers or generator sets, which may be used during construction. If required, the contractor will be responsible for obtaining an air pollution control permit from the Clean Air Branch and complying with all applicable conditions and requirements. Air monitoring would also be required during construction. With the appropriate controls in place, no significant impacts on air quality are anticipated as a result of the proposed action. Any potential impacts on air quality would be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 60 "Air Pollution Control". In the long-term, GHG emissions in the project area are not expected to increase as future land use plans proposed by DEM are expected to involve consolidation of existing solid waste management program components from the surrounding area. Soil erosion impacts would be mitigated by incorporating best management practices (BMP) and erosion control measures into the project plans and specifications. Specific measures may include but are not limited to: phasing the project to minimize the total area of exposed soil at any given time, revegetating or stabilizing disturbed areas of soil as soon as possible after working, minimizing disturbance of soil during periods of heavy rain, applying protective covers to soil and material stockpiles, and installing appropriate erosion and sedimentation control devices during construction. In addition, the proposed action will comply with the requirements of Hawai'i County Code, Chapter 10, related to Erosion and Sedimentation Control. Following construction, exposed soils in the project area would be stabilized or re-vegetated to control erosion. Soil erosion impacts would also be mitigated through coordination with the appropriate agencies during permitting and construction. A NPDES permit for storm water runoff from construction activities is anticipated to be required as individual and/or cumulative soil disturbances in the project area may exceed one acre of land area. Any discharges related to project construction or operation activities will comply with applicable State Water Quality Standards as specified in HAR Chapter 11-54 Water Quality Standards and HAR Chapter 11-55 Water Pollution Control, Department of Health. The Proposed Action will be developed in an urbanized environment that is in close proximity to many available services and facilities within Hilo.			
§226-14 Objective and policies for facility systems— in general. (a) Planning for the State's facility systems in general shall be directed towards achievement of the objective of water, transportation, waste disposal, and energy and telecommunication systems that support statewide social, economic, and physical objectives. (b) To achieve the general facility systems objective, it shall be the policy of this State to :			
(1) Accommodate the needs of Hawai'i's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.	**X**		
(2) Encourage flexibility in the design and development of facility systems to promote prudent use of resources and accommodate changing public demands and priorities.	**X**		
(3) Ensure that required facility systems can be supported within resource capacities and at reasonable cost to the user.	**X**		
(4) Pursue alternative methods of financing programs and projects and cost-saving techniques in the planning, construction, and maintenance of facility systems.	**X**		
Discussion: The Proposed Action supports the objectives and policies for facility systems in general. The Proposed Action will improve plant facilities to ensure wastewater treatment efficiency accommodating the needs of Hawai'i's present and future generations. The Proposed Action will consist of a mix of new facilities as well			

Table 4-1: The Hawai'i State Plan	S	NS	N/A
as replacement of existing structures, equipment, and systems. Furthermore, future facilities are planned to improve operating efficiency and support maintenance activities. The Proposed Action will continue to operate in an area that has been previously disturbed. The proposed use will continue to be in close proximity to existing services and facilities.			
§226-15 Objectives and policies for facility systems— solid and liquid wastes. (b) Planning for the State's facility systems with regard to solid and liquid wastes shall be directed towards the achievement of the following objectives: (1) Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes. (2) Provision of adequate sewerage facilities of physical and economic activities that alleviate problems in housing, employment, mobility, and other areas. (c) To achieve solid and liquid waste objectives, it shall be the policy of this State to:			
(1) Encourage the adequate development of sewerage facilities that complement planned growth.	**X**		
(2) Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.	**X**		
(3) Promote research to develop more efficient and economical treatment and disposals of solid and liquid wastes.			**X**
Discussion: The Proposed Action will support the objectives and policies for facility systems related to solid and liquid wastes. The Proposed Action will improve plant facilities to ensure wastewater treatment efficiency and support maintenance activities. Maintenance of basic public health and sanitation standards relating to treatment and disposal of waste will aid in alleviating critical system deficiencies which threaten reliable wastewater treatment and safety, including severe concrete deterioration, malfunctioning equipment, and safety hazards.			
§226-16 Objective and policies for facility systems— water. (a) Planning for the State's facility systems with regard to water shall be directed towards achievement of the objective of the provision of water to adequately accommodate domestic, agricultural, commercial, industrial, recreational, and other needs within resource capacities. (b) To achieve the facility systems water objective, it shall be the policy of the State to:			
(1) Coordinate development of land use activities with existing and potential water supply.			**X**
(2) Support research and development of alternative methods to meet future water requirements well in advance of anticipated needs.			**X**
(3) Reclaim and encourage the productive use of runoff water and waste water discharges.	**X**		
(4) Assist in improving the quality, efficiency, service, and storage capabilities of water systems for domestic and agricultural use.	**X**		
(5) Support water supply services to areas experiencing critical water problems.			**X**
(6) Promote water conservation programs and practices in government, private industry, and the general public to help ensure adequate water to meet long-term needs.			**X**
Discussion: The Proposed Action will support the objectives and policies for facility systems related to water.			

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
The mix of new facilities as well as the replacement of existing structures, equipment, and systems will allow the Proposed Action to restore the original capacity of 5.0 mgd average dry weather flow.			
§226-17 Objectives and policies for facility systems— transportation. (a) Planning for the State's facility systems with regard to transportation shall be directed towards the achievement of the following objectives: (1) An integrated multi-modal transportation system that services statewide needs and promotes the efficient, economical, safe, and convenient movement of people and goods. (2) A statewide transportation system consistent with planned growth objectives throughout the State (b) To achieve the transportation objectives, it shall be the policy of this State to:			
(1) Design, program, and develop a multi-modal system in conformance with desired growth and physical development as stated in this chapter.			X
(2) Coordinate state, county, federal, and private transportation activities and programs toward the achievement of statewide objectives.			X
(3) Encourage a reasonable distribution of financial responsibilities for transportation among participating governmental and private parties.			X
(4) Provide for improved accessibility to shipping, docking, and storage facilities.			X
(5) Promote a reasonable level and variety of mass transportation services that adequately meet statewide and community needs.			X
(6) Encourage transportation systems that serve to accommodate present and future development needs of communities.			X
(7) Encourage a variety of carriers to offer increased opportunities and advantages to inter-island movement of people and goods.			X
(8) Increase the capacities of airport and harbor systems and support facilities to effectively accommodate transshipment and storage needs.			X
(9) Encourage the development of transportation, systems and programs which would assist statewide economic growth and diversification.			X
(10) Encourage the design and development of transportation systems sensitive to the needs of affected communities and the quality of Hawai‘i's natural environment.			X
(11) Encourage safe and convenient uses of low-cost, energy-efficient, non-polluting means of transportation.			X
(12) Coordinate intergovernmental land use and transportation planning activities to ensure the timely delivery of supporting transportation infrastructure in order to accommodate planned growth objectives.			X
(13) Encourage diversification of transportation modes and infrastructure to promote alternate fuels and energy efficiency.			X
Discussion: The Proposed Action will not impact any of the objectives and policies outlined above for facility systems related to transportation.			
§226-18 Objectives and policies for facility systems— energy. (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:			

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(1) Dependable, efficient, and economical statewide energy and telecommunication systems capable of supporting the needs of the people. (2) Increased energy self-sufficiency through the reduction and ultimate elimination of Hawaii's dependence on imported fuels for electrical generation and ground transportation; (3) Greater diversification of energy generation 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 (5) Utility models that make the social and financial interests of Hawaii's utility customers a priority.. (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 (c) To further achieve the energy objectives, it shall be the policy of this State to:			
(1) Support research and development as well as promote the use of renewable energy sources.			X
(2) Ensure a sufficient supply of energy to enable power systems to support the demands of growth.			X
(3) Base decisions of least-cost supply-side and demand-side energy resource options on a comparison of their total costs and benefits when a least-cost is determined by a reasonably comprehensive, quantitative, and qualitative accounting of their long-term, direct and indirect economic, environmental, social, cultural, and public health costs and benefits.			X
(4) Promote all cost-effective conservation of power and fuel supplies through measures, including: (A) Development of cost-effective demand-side management programs; (B) Education; (C) Adoption of energy-efficient practices and technologies; and (D) Increasing energy efficiency and decreasing energy use in public infrastructure.			X
(5) Ensure, to the extent that new supply-side resources are needed, that the development or expansion of energy systems uses the least-cost energy supply option and maximizes efficient technologies.			X
(6) Support research, development, demonstration, and use of energy efficiency, load management, and other demand-side management programs, practices, and technologies.			X
(7) Promote alternate fuels and transportation energy efficiency.			X
(8) Support actions that reduce, avoid, or sequester greenhouse gases in utility, transportation, and industrial sector applications.			X
(9) Support actions that reduce, avoid, or sequester Hawaii's greenhouse gas emissions through agriculture and forestry initiatives.			X
(10) Provide priority handling and processing for all state and county permits required for renewable energy projects.			X
(11) Ensure that liquefied natural gas is used only as a cost-effective transitional, limited-term replacement of petroleum for electricity generation and does not			X

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
impede the development and use of other cost-effective renewable energy sources.			
(12) Promote the development of indigenous geothermal energy resources that are located on public trust land as an affordable and reliable source of firm power for Hawaii.			X
Discussion: The Proposed Action will not impact any of the objectives and policies outlined above for facility systems related to energy.			
§226-18.5 Objectives and policies for facility systems— telecommunications. (a) Planning for the State's telecommunications facility systems shall be directed towards the achievement of dependable, efficient, and economical statewide telecommunications systems capable of supporting the needs of the people. (b) To achieve the telecommunications objective, it shall be the policy of this State to ensure the provision of adequate, reasonably priced, and dependable telecommunications services to accommodate demand. (c) To further achieve the telecommunications objective, it shall be the policy of this State to:			
(1) Facilitate research and development of telecommunication systems and resources.			X
(2) Encourage public and private sector efforts to develop means for adequate, ongoing telecommunication planning.			X
(3) Promote efficient management and use of existing telecommunication systems and services.			X
(4) Facilitate the development of education and training of telecommunication personnel.			X
Discussion: The Proposed Action will not impact any of the objectives and policies outlined above for facility systems related to telecommunications.			
§226-19 Objectives and policies for socio-cultural advancement— housing. (a) Planning for the State's socio-cultural advancement with regard to housing shall be directed toward the achievement of the following objectives: (1) Greater opportunities for Hawaii's people to secure reasonably priced, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more rental and for sale affordable housing is made available to extremely low-, very low-, lower-, moderate-, and above moderate-income segments of Hawaii's population. (2) The orderly development of residential areas sensitive to community needs and other land uses. (3) The development and provision of affordable rental housing by the State to meet the housing needs of Hawaii's people. (b) To achieve the housing objectives, it shall be the policy of this State to:			
(1) Effectively accommodate the housing needs of Hawai‘i's people.			X
(2) Stimulate and promote feasible approaches that increase affordable rental and for sale housing choices for extremely low-, very low-, lower-, moderate-, and above moderate-income households.			X
(3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.			X

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(4) Promote appropriate improvement, rehabilitation, and maintenance of existing housing units and residential areas.			X
(5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.			X
(6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.			X
(7) Foster a variety of lifestyles traditional to Hawai‘i through the design and maintenance of neighborhoods that reflect the cultures and values of the community.			X
(8) Promote research and development of methods to reduce the cost of housing construction in Hawai‘i.			X
Discussion: The Proposed Action will not impact the objectives and policies for socio-cultural advancement related to housing.			
§226-20 Objectives and policies for socio-cultural advancement— health. (a) Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives: (1) Fulfillment of basic individual health needs of the general public. (2) Maintenance of sanitary and environmentally healthful conditions in Hawai‘i's communities. (3) Elimination of health disparities by identifying and addressing social determinants of health. (b) To achieve the health objectives, it shall be the policy of this State to:			
(1) Provide adequate and accessible services and facilities for prevention and treatment of physical and mental health problems, including substance abuse.			X
(2) Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State.			X
(3) Encourage public and private efforts to develop and promote statewide and local strategies to reduce health care and related insurance costs.			X
(4) Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.			X
(5) Provide programs, services, and activities that ensure environmentally healthful and sanitary conditions.	X		
(6) Improve the State's capabilities in preventing contamination by pesticides and other potentially hazardous substances through increased coordination, education, monitoring, and enforcement			X
(7) Prioritize programs, services, interventions, and activities that address identified social determinants of health to improve native Hawaiian health and well-being consistent with the United States Congress' declaration of policy as codified in title 42 United States Code section 11702, and to reduce health disparities of disproportionately affected demographics, including native Hawaiians, other Pacific Islanders, and Filipinos. The prioritization of affected demographic groups other			X

Table 4-1: The Hawai'i State Plan	S	NS	N/A
than native Hawaiians may be reviewed every ten years and revised based on the best available epidemiological and public health data.			
Discussion: The Proposed Action will support the objectives and policies for socio-cultural advancement regarding health. Recent assessments of the condition of the current Hilo WWTP have identified a range of critical system deficiencies which threaten the reliable treatment of wastewater and the safety of workers. As the facility is considered critical infrastructure, any facility or equipment failure could constitute a risk to public health. The Proposed Action will undertake rehabilitation and replacement of the critical wastewater treatment facilities to improve treatment processes and fulfill objectives and policies related to socio-cultural advancements with regards to health.			
§226-21 Objective and policies for socio-cultural advancement— education. (a) Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations. (b) To achieve the education objective, it shall be the policy of this State to:			
(1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.			X
(2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.			X
(3) Provide appropriate educational opportunities for groups with special needs.			X
(4) Promote educational programs which enhance understanding of Hawaii's cultural heritage.			X
(5) Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands.			X
(6) Assist individuals, especially those experiencing critical employment problems or barriers, or undergoing employment transitions, by providing appropriate employment training programs and other related educational opportunities.			X
(7) Promote programs and activities that facilitate the acquisition of basic skills, such as reading, writing, computing, listening, speaking, and reasoning.			X
(8) Emphasize quality educational programs in Hawaii's institutions to promote academic excellence.			X
(9) Support research programs and activities that enhance the education programs of the State.			X
Discussion: The Proposed Action will not impact the objectives and policies of the State for the socio-cultural advancement regarding education.			
§226-22 Objective and policies for socio-cultural advancement— social services. (a) Planning for the State's socio-cultural advancement with regard to social services shall be directed towards the achievement of the objective of improved public and private social services and activities that enable individuals, families, and groups to become more self-reliant and confident to improve their well-being. (b) To achieve the social services objective, it shall be the policy of this State to:			
(1) Assist individuals, especially those in need of attaining a minimally adequate standard of living and those confronted by social and economic hardship conditions, through social services and activities within the State's fiscal capacities.			X

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(2) Promote coordination and integrative approaches among public and private agencies and programs to jointly address social problems that will enable individuals, families, and groups to deal effectively with social problems and to enhance their participation in society.			X
(3) Facilitate the adjustment of new residents, especially recently arrived immigrants, into Hawai'i's communities			X
(4) Promote alternatives to institutional care in the provision of long-term care for elder and disabled populations.			X
(5) Support public and private efforts to prevent domestic abuse and child molestation, and assist victims of abuse and neglect.			X
(6) Promote programs which assist people in need of family planning services to enable them to meet their needs.			X
Discussion: The Proposed Action will not impact the objectives and policies for socio-cultural advancement related to social services.			
§226-23 Objective and policies for socio-cultural advancement— leisure. (a) Planning for the State''s socio-cultural advancement with regard to leisure shall be directed towards the achievement of the objective of the adequate provision of resources to accommodate diverse cultural, artistic, and recreational needs for present and future generations. (b) To achieve the leisure objective, it shall be the policy of this State to:			
(1) Foster and preserve Hawai‘i''s multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.			X
(2) Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.			X
(3) Enhance the enjoyment of recreational experiences through safety and security measures, educational opportunities, and improved facility design and maintenance.			X
(4) Promote the recreational and educational potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved			X
(5) Ensure opportunities for everyone to use and enjoy Hawai‘i's recreational resources.			X
(6) Assure the availability of sufficient resources to provide for future cultural, artistic, and recreational needs			X
(7) Provide adequate and accessible physical fitness programs to promote the physical and mental well-being of Hawai‘i''s people.			X
(8) Increase opportunities for appreciation and participation in the creative arts, including the literary, theatrical, visual, musical, folk, and traditional art forms.			X
(9) Encourage the development of creative expression in the artistic disciplines to enable all segments of Hawai‘i''s population to participate in the creative arts.			X
(10) Assure adequate access to significant natural and cultural resources in public ownership.			X
Discussion: The Proposed Action will not impact the objectives and policies for socio-cultural advancement related to leisure.			

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
§226-24 Objective and policies for socio-cultural advancement—-individual rights and personal well-being. (a) Planning for the State''s socio-cultural advancement with regard to individual rights and personal well-being shall be directed towards achievement of the objective of increased opportunities and protection of individual rights to enable individuals to fulfill their socio-economic needs and aspirations. (b) To achieve the individual rights and personal wellbeing objective, it shall be the policy of this State to:			
(1) Provide effective services and activities that protect individuals from criminal acts and unfair practices and that alleviate the consequences of criminal acts in order to foster a safe and secure environment.			**X**
(2) Uphold and protect the national and state constitutional rights of every individual.			**X**
(3) Assure access to, and availability of, legal assistance, consumer protection, and other public services which strive to attain social justice.			**X**
(4) Ensure equal opportunities for individual participation in society.			**X**
Discussion: The Proposed Action will not impact the objectives and policies for socio-cultural advancement related to individual rights and personal well-being.			
§226-25 Objective and policies for socio-cultural advancement— culture. (a) Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawai‘i’s people. (b) To achieve the culture objective, it shall be the policy of this State to:			
(1) Foster increased knowledge and understanding of Hawai‘i's ethnic and cultural heritages and the history of Hawai‘i.			**X**
(2) Support activities and conditions that promote cultural values, customs, and arts that enrich the life styles of Hawai‘i's people and which are sensitive and responsive to family and community needs.			**X**
(3) Encourage increased awareness of the effects of proposed public and private actions on the integrity and quality of cultural and community life styles in Hawai‘i.			**X**
(4) Encourage the essence of the aloha spirit in people's daily-activities to promote harmonious relationships among Hawai‘i's people and visitors.			**X**
Discussion: The Proposed Action will not impact the objectives and policies for socio-cultural advancement related to culture.			
§226-26 Objectives and policies for socio-cultural advancement— public safety. (a) Planning for the State's socio-cultural advancement with regard to public safety shall be directed towards the achievement of the following objectives: (1) Assurance of public safety and adequate protection of life and property for all people. (2) Optimum organizational readiness and capability in all phases of emergency management to maintain the strength, resources, and social and economic well-being of the community in the event of civil disruptions, wars, natural disasters, and other major disturbances. (3) Promotion of a sense of community responsibility for the welfare and safety of Hawai‘i’s (b) To achieve the public safety programs objectives, it shall be the policy of this State to:			

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(1) Ensure that public safety programs are effective and responsive to community needs.			X
(2) Encourage increased community awareness and participation in public safety programs.			X
(c) To achieve the public safety programs objectives, it shall be the policy of this State to:			
(1) Support criminal justice programs aimed at preventing and curtailing criminal activities.			X
(2) Develop a coordinated, systematic approach to criminal justice administration among all criminal justice agencies.			X
(3) Provide a range of correctional resources which may include facilities and alternatives to traditional incarceration in order to address the varied security needs of the community and successfully reintegrate offenders into the community.			X
(d) To further achieve public safety objectives related to emergency management, it shall be the policy of this State to:			
(1) Ensure that responsible organizations are in a proper state of readiness to respond to major war related, natural, or technological disasters and civil disturbances at all times.			X
(2) Enhance the coordination between emergency management programs throughout the State.			X
Discussion: The Proposed Action will not impact the objectives and policies for socio-cultural advancement related to public safety.			
§226-27 Objectives and policies for socio-cultural advancement— government. (a) Planning the State's socio-cultural advancement with regard to government shall be directed towards the achievement of the following objectives: (1) Efficient, effective, and responsive government services at all levels in the State. (2) Fiscal integrity, responsibility and efficiency in the state government and county governments. (b) To achieve the government objectives, it shall be the policy of this State to:			
(1) Provide for necessary public goods and services not assumed by the private sector.	X		
(2) Pursue an openness and responsiveness in government that permits the flow of public information, interaction, and response.			X
(3) Minimize the size of government to that necessary to be effective.			X
(4) Stimulate the responsibility in citizens to productively participate in government for a better Hawai‘i.			X
(5) Assure that government attitudes, actions, and services are sensitive to community needs and concerns.	X		
(6) Provide for a balanced fiscal budget.			X
(7) Improve the fiscal budgeting and management system of the State.			X

Table 4-1: The Hawai‘i State Plan	S	NS	N/A
(8) Promote the consolidation of state and county governmental functions to increase the effective and efficient delivery of government programs and services and to eliminate duplicative services wherever feasible.			X
Discussion: The Proposed Action will support the objectives and policies for socio-cultural advancement related to government. The Hilo WWTP is operated by the COH-DEM, therefore categorized as a “public use” as defined by Hawai’i County Code § 25-1-5, as a use conducted by or a structure or building owned or managed by the federal government, the State of Hawai’i, or the County to fulfill a governmental function, activity, or service for public benefit and in accordance with public policy. Recent assessments of the condition of the current Hilo WWTP have identified a range of critical system deficiencies which threaten the reliable treatment of wastewater and the safety of workers. In response, the COH-DEM is proposing to undertake the rehabilitation and replacement of critical facilities to improve wastewater treatment processes at the WWTP. Therefore, the project supports the achievements of the objectives and policies for socio-cultural advancement with regards to government.			

PART III. PRIORITY GUIDELINES

Part III of the Hawai‘i State Plan establishes the overall priority guidelines to address areas of statewide concern. Under HRS § 226-102, "*The State shall strive to improve the quality of life for Hawai‘i's present and future population through the pursuit of desirable courses of action in seven major areas of Statewide concern which merit priority attention: economic development, population growth and land resource management, affordable housing, crime and criminal justice, quality education, principles of sustainability, and climate change adaptation*."

Table 4-2: Part III of the Hawai‘i State Plan	S	NS	N/A
§226-103 Economic priority guidelines. (a) Priority guidelines to stimulate economic growth and encourage business expansion and development to provide needed jobs for Hawai‘i’s people and achieve a stable and diversified economy:			
(1) Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.			X
(2) Encourage the expansion of technological research to assist industry development and support the development and commercialization of technological advancements.			X
(3) Improve the quality, accessibility, and range of services provided by government to business, including data and reference services and assistance in complying with governmental regulations.			X
(4) Seek to ensure that state business tax and labor laws and administrative policies are equitable, rational, and predictable.			X
(5) Streamline the building and development permit and review process, and eliminate or consolidate other burdensome or duplicative governmental requirements imposed on business, where public health, safety, and welfare would not be adversely affected.			X
(6) Encourage the formation of cooperatives and other favorable marketing or distribution arrangements at the regional or local level to assist Hawai‘i's small-scale producers, manufacturers, and distributors.			X

Table 4-2: Part III of the Hawai‘i State Plan	S	NS	N/A
(7) Continue to seek legislation to protect Hawai‘i from transportation interruptions between Hawai‘i and the continental United States.			X
(8) Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials and which have the following characteristics: (a) An industry that can take advantage of Hawai‘i's unique location and available physical and human resources. (b) A clean industry that would have minimal adverse effects on Hawai‘i's environment. (c) An industry that is willing to hire and train Hawai‘i's people to meet the industry's labor needs. (d) An industry that would provide reasonable income and steady employment.			X
(9) Support and encourage, through educational and technical assistance programs and other means, expanded opportunities for employee ownership and participation in Hawai‘i business.			X
(10) Enhance the quality of Hawai‘i’s labor force and develop and maintain career opportunities for Hawai‘i’s people through the following actions: (a) Expand vocational training in diversified agriculture, aquaculture, and other areas where growth is desired and feasible. (b) Encourage more effective career counseling and guidance in high schools and post-secondary institutions to inform students of present and future career opportunities. (c) Allocate educational resources to career areas where high employment is expected and where growth of new industries is desired. (d) Promote career opportunities in all industries for Hawai‘i's people by encouraging firms doing business in the State to hire residents. (e) Promote greater public and private sector cooperation in determining industrial training needs and in developing relevant curricula and on-the-job training opportunities. (f) Provide retraining programs and other support services to assist entry of displaced workers into alternative employment.			X
(b) Priority guidelines to promote the economic health and quality of the visitor industry:			
(1) Promote visitor satisfaction by fostering an environment which enhances the Aloha Spirit and minimizes inconveniences to Hawai‘i's residents and visitors.			X
(2) Encourage the development and maintenance of well-designed, adequately serviced hotels and resort destination areas which are sensitive to neighboring communities and activities and which provides for adequate shoreline setbacks and beach access.			X
(3) Support appropriate capital improvements to enhance the quality of existing resort destination areas and provide incentives to encourage investment in upgrading, repair, and maintenance of visitor facilities.			X
(4) Encourage visitor industry practices and activities which respect, preserve, and enhance Hawai‘i's significant natural, scenic, historic, and cultural resources.			X
(5) Develop and maintain career opportunities in the visitor industry for Hawai‘i's people, with emphasis on managerial positions.			X

Table 4-2: Part III of the Hawai'i State Plan	S	NS	N/A
(6) Support and coordinate tourism promotion abroad to enhance Hawai'i's share of existing and potential visitor markets.			X
(7) Maintain and encourage a more favorable resort investment climate consistent with the objectives of this chapter.			X
(8) Support law enforcement activities that provide a safer environment for both visitors and residents alike.			X
(c) Priority guidelines to promote the continued viability of the sugar and pineapple industries:			
(1) Provide adequate agricultural lands to support the economic viability of the sugar and pineapple industries.			X
(2) Continue efforts to maintain federal support to provide stable sugar prices high enough to allow profitable operations in Hawai'i.			X
(3) Support research and development, as appropriate, to improve the quality and production of sugar and pineapple crops.			X
(d) Priority guidelines to promote the growth and development of diversified agriculture and aquaculture:			
(1) Identify, conserve, and protect agricultural and aquacultural lands of importance and initiate affirmative and comprehensive programs to promote economically productive agricultural and aquacultural uses of such lands.			X
(2) Assist in providing adequate, reasonably priced water for agricultural activities.			X
(3) Encourage public and private investment to increase water supply and to improve transmission, storage, and irrigation facilities in support of diversified agriculture and aquaculture.			X
(4) Assist in the formation and operation of production and marketing associations and cooperatives to reduce production and marketing costs.			X
(5) Encourage and assist with the development of a waterborne and airborne freight and cargo system capable of meeting the needs of Hawai'i's agricultural community			X
(6) Seek favorable freight rates for Hawai'i's agricultural products from interisland and overseas transportation operators.			X
(7) Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.			X
(8) Continue the development of agricultural parks and other programs to assist small independent farmers in securing agricultural lands and loans.			X
(9) Require agricultural uses in agricultural subdivisions and closely monitor the uses in these subdivisions.			X
(e) Priority guidelines for water use and development:			
(1) Maintain and improve water conservation programs to reduce the overall water consumption rate.			X
(2) Encourage the improvement of irrigation technology and promote the use of non-potable water for agricultural and landscaping purposes.			X
(3) Increase the support for research and development of economically feasible alternative water sources.			X

Table 4-2: Part III of the Hawai‘i State Plan	S	NS	N/A
(4) Explore alternative funding sources and approaches to support future water development programs and water system improvements.			X
(f) Priority guidelines for energy use and development:			
(1) Encourage the development, demonstration, and commercialization of renewable energy sources.			X
(2) Initiate, maintain, and improve energy conservation programs aimed at reducing energy waste and increasing public awareness of the need to conserve energy.			X
(3) Provide incentives to encourage the use of energy conserving technology in residential, industrial, and other buildings.			X
(4) Encourage the development and use of energy conserving and cost-efficient transportation systems.			X
(g) Priority guidelines to promote the development of the information industry:			
(1) Establish an information network, with an emphasis on broadband and wireless infrastructure and capability that will serve as the foundation of and catalyst for overall economic growth and diversification in Hawaii.			X
(2) Encourage the development of services such as financial data processing, a products and services exchange, foreign language translations, telemarketing, teleconferencing, a twenty-four-hour international stock exchange, international banking, and a Pacific Rim management center.			X
(3) Encourage the development of small businesses in the information field such as software development; the development of new information systems, peripherals, and applications; data conversion and data entry services; and home or cottage services such as computer programming, secretarial, and accounting services.			X
(4) Encourage the development or expansion of educational and training opportunities for residents in the information and telecommunications fields.			X
(5) Encourage research activities, including legal research in the information and telecommunications fields.			X
(6) Support promotional activities to market Hawai'i's information industry services.			X
(7) Encourage the location or co-location of telecommunication or wireless information relay facilities in the community, including public areas, where scientific evidence indicates that the public health, safety, and welfare would not be adversely affected.			X
Discussion: The Proposed Action will not impact the objectives and policies outlined within the Hawai‘i State plan for economic priority guidelines.			
§226-104 Population growth and land resources priority guidelines.			
(a) Priority guidelines to effect desired statewide growth and distribution:			
(1) Encourage planning and resource management to ensure that population growth rates throughout the State are consistent with available and planned resource capacities and reflect the needs and desires of Hawai‘i's people.	X		
(2) Manage a growth rate for Hawai‘i’s economy that will parallel future employment needs for Hawai‘i’s people.			X
(3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.	X		

Table 4-2: Part III of the Hawai‘i State Plan	S	NS	N/A
(4) Encourage major state and federal investments and services to promote economic development and private investment to the neighbor islands, as appropriate.			X
(5) Explore the possibility of making available urban land, low-interest loans, and housing subsidies to encourage the provision of housing to support selective economic and population growth on the neighbor islands.			X
(6) Seek federal funds and other funding sources outside the State for research, program development, and training to provide future employment opportunities on the neighbor islands.			X
(7) Support the development of high technology parks on the neighbor islands.			X
(b) Priority guidelines for regional growth distribution and land resource utilization:			
(1) Encourage urban growth primarily to existing urban areas where adequate public facilities are already available or can be provided with reasonable public expenditures and away from areas where other important benefits are present, such as protection of important agricultural land or preservation of lifestyles.			X
(2) Make available marginal or non-essential agricultural lands for appropriate urban uses while maintaining agricultural lands of importance in the agricultural district.			X
(3) Restrict development when drafting of water would result in exceeding the sustainable yield or in significantly diminishing the recharge capacity of any groundwater area.			X
(4) Encourage restriction of new urban development in areas where water is insufficient from any source for both agricultural and domestic use.			X
(5) In order to preserve green belts, give priority to state capital improvement funds which encourage location of urban development within existing urban areas except where compelling public interest dictates development of a non-contiguous new urban core.			X
(6) Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.			X
(7) Pursue rehabilitation of appropriate urban areas.			X
(8) Support the redevelopment of Kaka‘ako into a viable residential, industrial, and commercial community.			X
(9) Direct future urban development away from critical environmental areas or impose mitigating measures so that negative impacts on the environment would be minimized.	X		
(10) Identify critical environmental areas in Hawai‘i to include but not be limited to the following: watershed and recharge areas; wildlife habitats (on land and in the ocean); areas with endangered species of plants and wildlife; natural streams and water bodies; scenic and recreational shoreline resources; open space and natural areas; historic and cultural sites; areas particularly sensitive to reduction in water and air quality; and scenic resources.			X
(11) Identify all areas where priority should be given to preserving rural character and lifestyle.			X
(12) Utilize Hawai‘i’s limited land resources wisely, providing adequate land to accommodate projected population and economic growth needs while ensuring the	X		

Table 4-2: Part III of the Hawai‘i State Plan	S	NS	N/A
protection of the environment and the availability of the shoreline, conservation lands, and other limited resources for future generations.			
(13) Protect and enhance Hawai‘i’s shoreline, open spaces, and scenic resources.			X
Discussion: The Proposed Action will support the objectives and policies for Population Growth and Land Resources Priority Guidelines. The Proposed Action aims to rehabilitate and replace the existing Hilo WWTP, which is currently operating at a substandard level, relative to original design parameters. The Proposed Action is necessary to ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth within the Hilo region. The Proposed Action will involve the rehabilitation of an existing urban area in close proximity to other services and facilities. Additionally, the construction and operation of the Proposed Action will implement appropriate mitigation measures to minimize and avoid any negative impacts on the environment.			
§226-105 Crime and criminal justice Priority guidelines in the area of crime and criminal justice:			
(1) Support law enforcement activities and other criminal justice efforts that are directed to provide a safer environment.			X
(2) Target state and local resources on efforts to reduce the incidence of violent crime and on programs relating to the apprehension and prosecution of repeat offenders.			X
(3) Support community and neighborhood program initiatives that enable residents to assist law enforcement agencies in preventing criminal activities.			X
(4) Reduce overcrowding or substandard conditions in correctional facilities through a comprehensive approach among all criminal justice agencies which may include sentencing law revisions and use of alternative sanctions other than incarceration for persons who pose no danger to their community.			X
(5) Provide a range of appropriate sanctions for juvenile offenders, including community-based programs and other alternative sanctions.			X
(6) Increase public and private efforts to assist witnesses and victims of crimes and to minimize the costs of victimization.			X
Discussion: The Proposed Action will not impact the objectives and policies outlined within the Hawai‘i State plan related to crime and criminal activity.			
§226-106 Affordable housing Priority guidelines for the provision of affordable housing:			
(1) Seek to use marginal or non-essential agricultural land and public land to meet housing needs of low and moderate-income and gap-group households.			X
(2) Encourage the use of alternative construction and development methods as a means of reducing production costs.			X
(3) Improve information and analysis relative to land availability and suitability for housing.			X
(4) Create incentives for development which would increase home ownership and rental opportunities for Hawai‘i’s low and moderate-income households, gap-group households, and residents with special needs.			X

Table 4-2: Part III of the Hawai‘i State Plan	S	NS	N/A
(5) Encourage continued support for government or private housing programs that provide low interest mortgages to Hawai‘i’s people for the purchase of initial owner-occupied housing.			X
(6) Encourage public and private sector cooperation in the development of rental housing alternatives.			X
(7) Encourage improved coordination between various agencies and levels of government to deal with housing policies and regulations.			X
(8) Give higher priority to the provision of quality housing that is affordable for Hawaii's residents and less priority to development of housing intended primarily for individuals outside of Hawaii.			X
Discussion: The Proposed Action will not impact the objectives and policies outlined within the Hawai‘i State plan related to affordable housing.			
§226-107 Quality education. Priority guidelines to promote quality education:			
(1) Pursue effective programs which reflect the varied district, school, and student needs to strengthen basic skills achievement.			X
(2) Continue emphasis on general education “core” requirements to provide common background to students and essential support to other university programs.			X
(3) Initiate efforts to improve the quality of education by improving the capabilities of the education work force.			X
(4) Promote increased opportunities for greater autonomy and flexibility of educational institutions in their decision-making responsibilities.			X
(5) Increase and improve the use of information technology in education by the availability of telecommunications equipment for: (A) The electronic exchange of information; (B) Statewide electronic mail; and (C) Access to the Internet. Encourage programs that increase the public’s awareness and understanding of the impact of information technologies on our lives.			X
(6) Pursue the establishment of Hawai‘i’s public and private universities and colleges as research and training centers of the Pacific.			X
(7) Develop resources and programs for early childhood education.			X
(8) Explore alternatives for funding and delivery of educational services to improve the overall quality of education.			X
(9) Strengthen and expand educational programs and services for students with special needs.			X
Discussion: The Proposed Action will not impact the objectives and policies outlined within the Hawai‘i State plan related to quality education.			
§226-108 Sustainability. Priority guidelines and principles to promote sustainability:			
(1) Encouraging balanced economic, social, community, and environmental priorities.			X

Table 4-2: Part III of the Hawai‘i State Plan	S	NS	N/A
(2) Encouraging planning that respects and promotes living within the natural resources and limits of the State.	X		
(3) Promoting a diversified and dynamic economy.	X		
(4) Encouraging respect for the host culture.			X
(5) Promoting decisions based on meeting the needs of the present without compromising the needs of future generations.	X		
(6) Considering the principles of the ahupua‘a system.	X		
(7) Emphasizing that everyone, including individuals, families, communities, businesses, and government, has the responsibility for achieving a sustainable Hawai‘i.			X
Discussion: The Proposed Action will support the priority guidelines and principles regarding sustainability. Public infrastructure, such as wastewater systems, are essential to building a strong economy, protecting the environment, and providing an enhanced quality of life. The Proposed Action seeks to rehabilitate aging wastewater infrastructure to provide effective and efficient treatment of wastewater. The Proposed Action supports sustainable economic development and growth through the creation of short-term construction and long-term operations employment opportunities.			
§226-109 Climate change adaptation. Priority guidelines for climate change adaptation:			
(1) Ensure that Hawaii's people are educated, informed, and aware of the impacts climate change may have on their communities.			X
(2) Encourage community stewardship groups and local stakeholders to participate in planning and implementation of climate change policies.			X
(3) Invest in continued monitoring and research of Hawaii's climate and the impacts of climate change on the State.			X
(4) Consider native Hawaiian traditional knowledge and practices in planning for the impacts of climate change.			X
(5) Encourage the preservation and restoration of natural landscape features, such as coral reefs, beaches and dunes, forests, streams, floodplains, and wetlands that have the inherent capacity to avoid, minimize, or mitigate the impacts of climate change.			X
(6) Explore adaptation strategies that moderate harm or exploit beneficial opportunities in response to actual or expected climate change impacts to the natural and built environments.			X
(7) Promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaptation options.	X		
(8) Foster cross-jurisdictional collaboration between county, state, and federal agencies and partnerships between government and private entities and other nongovernmental entities, including nonprofit entities.	X		
(9) Use management and implementation approaches that encourage the continual collection, evaluation, and integration of new information and strategies into new and existing practices, policies, and plans.			X

Table 4-2: Part III of the Hawai'i State Plan	S	NS	N/A
(10) Encourage planning and management of the natural and built environments that effectively integrate climate change policy.			X
Discussion: The Proposed Action will support the priority guideline policies and objectives related to climate change adaptation. The existing conditions of the WWTP have been assessed to pose a threat to the reliable treatment of wastewater and overall public health. The rehabilitation and replacement of the WWTP serves to address these concerns to provide effective and efficient treatment of wastewater for the Hilo community. The various improvements will be primarily funded by the County and may also utilize federal funds through the State of Hawai'i Department of Health (DOH) Clean Water State Revolving Fund (CWSRF) Program.			

4.1.2. State Functional Plans

The Hawai'i State Plan directs appropriate State agencies to prepare Functional Plans which address statewide needs, problems, and issues, and recommend policies and actions to mitigate those problems. The Functional Plans are prepared to further define and implement statewide goals, objectives, policies, and priority guidelines contained in the Hawai'i State Plan. Thirteen Functional Plans were prepared to implement the State Plan provisions in the areas of agriculture, conservation lands, education, employment, energy, health, higher education, historic preservation, housing, human services, recreation, tourism, and transportation.

Table 4-3: Hawai'i State Functional Plans		S	NS	N/A
1	**Agricultural State Functional Plan (1991)**			
Purpose: Continued viability of agriculture throughout the State.				X
Discussion: The Proposed Action is not directly appliable to the Agricultural State Functional Plan.				
2	**Conservation Lands State Functional Plan (1991)**			
Purpose: Addresses issues of population and economic growth and its strain on current natural resources; broadening public use of natural resources while protecting lands and shorelines from overuse; additionally, promotes the aquaculture industry.		X		
Discussion: The Proposed Action will support the Conservation Lands State Functional Plan. The Proposed Action is located about one mile from the shoreline. As such, the Proposed Action will not be applicable to the use of Conservation lands in the State. As previously discussed, the Proposed Action site plan shows the WWTP facility is located about one mile from the shoreline and, as such, the project improvements will not affect the shoreline.				
3	**Education State Functional Plan (1989)**			
Purpose: Improvements to Hawai'i's educational curriculum, quality of educational staff, and access to adequate facilities.				X
Discussion: The Proposed Action is not directly applicable to the Education State Functional Plan.				
4	**Employment State Functional Plan (1990)**			
Purpose: Improve the qualifications, productivity, and effectiveness of the State's workforce through better education and training of workers as well as efficient planning of economic development, employment opportunities, and training activities**.**				X
Discussion: The Proposed Action is not directly applicable to the Employment State Functional Plan.				
5	**Energy State Functional Plan (1991)**			
Purpose: Lessen the reliance on petroleum and other fossil fuels in favor of alternative sources of energy so as to keep up with the State's increasing energy demands while also				X

Table 4-3: Hawai‘i State Functional Plans		S	NS	N/A
becoming a more sustainable island state; achieving dependable, efficient, and economical statewide energy systems.				
Discussion: The Proposed Action is not directly applicable to the Energy State Functional Plan.				
6	**Health State Functional Plan**			
Purpose: Improve the health care system by providing for those who do not have access to private health care providers; increasing preventative health measures; addressing ‘quality of care’ elements in private and public sectors to cut increasing costs.				**X**
Discussion: The Proposed Action is not directly applicable to the Health State Functional Plan.				
7	**Higher Education Functional Plan (1984)**			
Purpose: Prepare Hawai‘i’s citizens for the demands of an increasingly complex world through providing technical and intellectual tools.				**X**
Discussion: The Proposed Action is not directly applicable to the Higher Education Functional Plan.				
8	**Historic Preservation State Functional Plan (1991)**			
Purpose: Preservation of historic properties, records, artifacts and oral histories; provide public with information/education on the ethnic and cultural heritages and history of Hawai‘i				**X**
Discussion: The Proposed Action is not directly applicable to the Historic Preservation State Functional Plan.				
9	**Housing State Functional Plan (1989)**			
Purpose: Provide affordable rental and for-sale housing; increase homeownership and amount of rental housing units; acquiring public and privately-owned lands for future residential development; maintain a statewide housing data system				**X**
Discussion: The Housing State Functional Plan is not directly applicable to the Proposed Action.				
10	**Human Services State Functional Plan (1991)**			
Purpose: Refining support systems for families and individuals by improving elderly care, increasing preventative measures to combat child/spousal abuse and neglect; providing means for ‘self-sufficiency’				**X**
Discussion: The Proposed Action is not directly applicable to the Human Services State Functional Plan.				
11	**Recreation State Functional Plan (1991)**			
Purpose: Manage the use of recreational resources via addressing issues: (1) ocean and shoreline recreation, (2) mauka, urban, and other recreation, (3) public access to shoreline and upland recreation areas, (4) resource conservation and management, (5) management of recreation programs/facilities/areas, and (6) wetlands protection and management.				**X**
Discussion: The Proposed Action is not directly applicable to the Recreation State Functional Plan.				
12	**Tourism State Functional Plan (1991)**			
Purpose: Balance tourism/economic growth with environmental and community concerns; development that is cognizant of the limited land and water resources of the islands; maintaining friendly relations between tourists and community members; development of a productive workforce and enhancement of career and employment opportunities in the visitor industry.				**X**
Discussion: The Proposed Action is not directly applicable to the Tourism State Functional Plan.				
13	**Transportation State Functional Plan (1991)**			
Purpose: Development of a safer, more efficient transportation system that also is consistent with planned physical and economic growth of the state; construction of facility and				**X**

Table 4-3: Hawai‘i State Functional Plans	S	NS	N/A
infrastructure improvements; develop a transportation system balanced with new alternatives; pursue land use initiatives which help reduce travel demand.			
Discussion: The Proposed Action is not directly applicable to the Transportation State Functional Plan.			

4.1.3. State Land Use Law, Chapter 205, Hawai‘i Revised Statutes

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect and encourage the development of lands in the State for uses which are best suited to the public health and welfare of Hawai‘i’s people. Under Chapter 205, HRS, all lands in the State are classified into four land use districts by the State Land Use Commission (LUC): Urban, Agricultural, Conservation, and Rural. The State Land Use Commission (LUC) is responsible for preserving and protecting Hawai‘i’s lands and encouraging those uses to which lands are best suited. Permitted uses within the districts are prescribed under Title 12, Chapter 205 (Land Use Commission), HRS, and the State Land Use Commission’s Administrative Rules prescribed under Title 15, Subtitle 3, Chapter 15 HAR.

Discussion:

The State Land Use District Boundary map for the island of Hawai’i designates the subject property as part of the State Land Use Agricultural District (See Figure 4-1). The existing and planned use are a permitted use for areas within the State Land Use Agricultural District with approval of a Special Permit approved by the East Hawai'i Planning Commission.

4.1.4. Hawai‘i Coastal Zone Management Program, Chapter 205A, Hawai‘i Revised Statutes

The National Coastal Zone Management (CZM) Program was created through passage of the Coastal Zone Management Act of 1972. The U.S. Congress enacted the CZM Act to assist states in better managing coastal and estuarine environments. The Act provides grants to states that develop and implement Federally approved CZM plans. The goal of the CZM Act is to “*preserve, protect, develop, and where possible, to restore or enhance the resources of the nation’s coastal zone.*” Hawai‘i’s CZM Act, adopted as Chapter 205A, HRS, provides a basis for protecting, restoring and responsibly developing coastal communities and resources. The objectives and policies of the Hawai‘i CZM Program encompass broad concerns such as impact on recreational resources, historic and archaeological resources, coastal scenic resources and open space, coastal ecosystems, coastal hazards, and the management of development. The Hawai‘i CZM area includes all lands within the State and the areas seaward to the extent of the State’s management jurisdiction. Hence, the project area is located in the CZM area. The Proposed Action's conformance with the ten objectives and numerous policies of the State of Hawai‘i CZMP is set forth in Table 4-4 below.

WILSON OKAMOTO CORPORATION

FIGURE 4-1

STATE LAND USE DISTRICT MAP

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT

Table 4-4: Hawai'i Coastal Zone Management Act	S	NS	N/A
Recreational Resources			
Objective: Provide coastal recreational opportunities accessible to the public.			
Policies			
(A) Improve coordination and funding of coastal recreational planning and management; and			**X**
(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:			**X**
i. Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;			**X**
ii. Requiring restoration of coastal resources that have significant recreational and ecosystem value, including, but not limited to, coral reefs, surfing sites, fishponds, sand beaches, and coastal dunes, when these resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when restoration is not feasible or desirable;			**X**
iii. Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;			**X**
iv. Providing an adequate supply of shoreline parks and other recreational facilities suitable public recreation;			**X**
v. 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;			**X**
vi. Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters;			**X**
vii. Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and			**X**
viii. 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 that dedication against the requirements of section 46-6.			**X**
Discussion: The Proposed Action is not a coastal dependent development. The project site is located approximately 1.3 miles away from the nearest coastline. Access to and provision of coastal recreational resources will not be affected 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:			
(A) Identify and analyze significant archaeological resources;			**X**

Table 4-4: Hawai'i Coastal Zone Management Act	S	NS	N/A
(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and			X
(C) Support state goals for protection, restoration, interpretation, and display of historic resources.			X
Discussion: The Proposed Action will have no significant impact on historic and cultural resources.			
Scenic and Open Space Resources			
Objective: Protect, preserve, and, where desirable, restore or improve the quality of coastal scenic and open space resources.			
Policies			
(A) Identify valued scenic resources in the coastal zone management area;			X
(B) Ensure that new developments are compatible with their visual environment by designing and locating those developments to minimize the alteration of natural land forms and existing public views to and along the shoreline;			X
(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and			X
(D) Encourage those developments that are not coastal dependent to locate in inland areas.			X
Discussion: The Proposed Action does not have an impact on scenic and open space resources. The project site is located approximately 1.3 miles away from the nearest coastline. Thus, the Proposed Action will not adversely affect existing public views to and along the shoreline. Construction of the Proposed Action will not significantly alter the topography in such a way that would diminish the aesthetic character of the area.			
Coastal Ecosystems			
Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.			
Policies			
(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;			X
(B) Improve the technical basis for natural resource management;			X
(C) Preserve valuable coastal ecosystems of significant biological or economic importance, including reefs, beaches, and dunes;			X
(D) 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			X
(E) Promote water quantity and quality planning and management practices that reflect the tolerance of freshwater and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.			X
Discussion: The Proposed Action is not a coastal dependent development and is not anticipated to have an effect on coastal ecosystems. The project site is located approximately 1.3 miles away from the nearest coastline. No surface or coastal water bodies occur in the vicinity. Therefore, the Proposed Action is not anticipated to have any adverse impacts on coastal ecosystems. Moreover, all applicable construction best managements practices will be implemented with regard to runoff to ensure any potential impacts to coastal ecosystems are not affected.			
Economic Uses			

Table 4-4: Hawai'i Coastal Zone Management Act	S	NS	N/A
Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.			
Policies			
(A) Concentrate coastal dependent development in appropriate areas;			X
(B) Ensure that coastal dependent development and coastal related development are located, designed, and constructed to minimize exposure to coastal hazards and adverse social, visual, and environmental impacts in the coastal zone management area; and			X
(C) Direct the location and expansion of coastal development to areas designated and used for that development and permit reasonable long-term growth at those areas, and permit coastal development outside of presently designated areas when:			X
i. Use of designated locations is not feasible;			X
ii. Adverse environmental effects and risks from coastal hazards are minimized; and			X
iii. The development is important to the State's economy;			X
Discussion: The Proposed Action is not a coastal dependent development and is not anticipated to have an effect on coastal economic uses as the Project Site is located approximately 1.3 miles from the nearest coastal area.			
Coastal Hazards			
Objective: Reduce hazard to life and property from coastal hazards.			
Policies			
(A) Develop and communicate adequate information about the risks of coastal hazards;			X
(B) Control development, including planning and zoning control, in areas subject to coastal hazards;			X
(C) Ensure that developments comply with requirements of the National Flood Insurance Program; and			X
(D) Prevent coastal flooding from inland projects.			X
Discussion: As discussed in Section 3.5 (Natural Hazards) the Project Site is not in an area prone to erosion, flooding, tsunami, hurricanes, earthquake, volcanic eruptions, or other hazards and the Proposed Action will not exacerbate any natural hazard conditions. The Project Site is not located in a Tsunami Inundation Zone and is not likely to be damaged in the event of flooding. Impacts from natural hazards can be further mitigated by adherence to appropriate civil defense evacuation procedures. The project site is located approximately 1.3 miles from the coast and in an area designated as Zone X on the Floor Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA). Zone X is an "area of minimal flood hazard". Additionally, the project site is located outside of the tsunami evacuation zone. Development generated runoff would be retained on-site as determined through a separate drainage study. The final drainage system design would be coordinated with the County of Hawai'i Department of Public Works (DPW) prior to construction.			
Managing Development			
Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.			
Policies			

Table 4-4: Hawai'i Coastal Zone Management Act	S	NS	N/A
(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;			X
(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and			X
(C) 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.	X		
Discussion: This EA has been prepared under the procedural provisions of HRS, Chapter 343, and HAR, Title 11, Chapter 200.1, which allows for public review and participation. Accordingly, the preparation of this EA, and disclosure of anticipated effects of the project, will comply with the policy on managing development, and be reviewed by the public and various state and county agencies through this EA process. The Early Consultation/Pre-Assessment process included efforts to inform the community and solicit input in scoping the EA for the Proposed Action. The Early Consultation/Pre-Assessment Package for the Proposed Action was mailed out on September 21, 2023 to the agencies, organizations, and stakeholders listed in Section 7.1. This EA will inform interested parties of the proposed action and seek relevant public comment on subjects of concern for EA documentation. The filing and publication of a Draft EA with the OEQC is followed by a 30-day public comment period. All relevant public comments received during the 30-day public comment period receives a written response for inclusion and use in the preparation of the Final EA			
Public Participation			
Objective: Stimulate public awareness, education, and participation in coastal management.			
Policies:			
(A) Promote public involvement in coastal zone management processes;	X		
(B) 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	X		
(C) Organize workshops, policy dialogues, and site-specific mitigation to respond to coastal issues and conflicts.			X
Discussion: This EA has been prepared under the procedural provisions of HRS, Chapter 343, and HAR, Title 11, Chapter 200.1, which allows for public review and participation. Accordingly, the preparation of this EA, and disclosure of anticipated effects of the project, will comply with the policy on managing development, and be reviewed by the public and various state and county agencies through this EA process. In addition, following the publication of the Draft EA through the State Environmental Review Program's *The Environmental Notice*, a 30-day public comment period follows whereby the public can participate and provide comments on the Proposed Action. Public involvement consisted of public notice of the Proposed Action during the State environmental review process through publication in the *Environmental Notice*, and through direct coordination with agencies, organizations, and individuals. See Section 7.1 for a list of the agencies, organizations and individuals that have been consulted for the Proposed Action. The publication of a Draft EA will be followed by a 30-day public comment period and those comments and responses will be included in a Final EA. If deemed necessary by DEM, a public informational meeting could be held during the 30-day public comment period to address community concerns and provide more information about the project.			
Beach and Coastal Dune Protection			

Table 4-4: Hawai'i Coastal Zone Management Act	S	NS	N/A
Objective: (A) Protect beaches and coastal dunes for: (i)Public use and recreation; (ii) The benefit of coastal ecosystems; and (iii) Use as natural buffers against coastal hazards; and (B) Coordinate and fund beach management and protection.			
Policies:			
(A) 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;			**X**
(B) Prohibit construction of private shoreline hardening including seawalls and revetments, at sites having sand beaches and at sites where shoreline hardening structures interfere with existing recreational and waterline activities; and			**X**
(C) Minimize the construction of public shoreline hardening structures including seawalls and revetments, at sites having sand beaches and at sites where shoreline hardening structures interfere with existing recreational and waterline activities;			**X**
(D) Minimize grading of and damage to coastal dunes;			**X**
(E) 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			**X**
(F) 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.			**X**
Discussion: The Proposed Action is not a coastal dependent development and is not anticipated to have an effect on coastal beaches or dunes as the Project Site is located approximately 2 miles away from the nearest coastline at Puhi Bay. No structures are proposed within the shoreline and public beaches, both of which will not be affected by the Proposed Action.			
Marine and Coastal Resources			
Objective: Promote the protection, use, and development of marine and coastal resources to assure their sustainability.			
Policies			
(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;			**X**
(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;			**X**
(C) 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;			**X**
(D) Promote research, study, and understanding of ocean and coastal processes, impacts of climate change and sea level rise, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how coastal development activities relate to and impact ocean and coastal resources; and			**X**

Table 4-4: Hawai‘i Coastal Zone Management Act	S	NS	N/A
(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.			X
Discussion: The Proposed Action is not anticipated to adversely affect marine or aquatic resources. The Proposed Action site is located approximately 2 miles away from the nearest coastline at Puhi Bay. Appropriate best management practices and erosion control measures will be implemented to ensure that marine and coastal resources are not adversely impacted from construction activities.			

4.2. County of Hawai‘i Land Use Plans and Policies

4.2.1. County of Hawai‘i General Plan

In August 2019, the Planning Department issued the first draft General Plan 2040. The purpose of the draft was to solicit feedback from the public, organizations, and agencies. The gathered information will be complied to form the basis for revisions to the draft General Plan prior or submission to the Planning Commission and the County Council. To date, since that process has not been completed, the existing General Plan adopted by the Hawai‘i County Council in February 2005 (amended in December 2006), serves as the overall planning document outlining the long-range comprehensive development of Hawai‘i Island. Since review of the General Plan 2040 has not been completed, the 2005 General Plan will be used for analysis. See below for further discussion related to the latest version of the General Plan.

The 2005 General Plan contains goals, policies and standards to guide the development of the County in 13 areas: economic, energy, environmental quality, flood control and drainage, historic sites, natural beauty, natural resources and shoreline, housing, public facilities, public utilities, recreation, transportation, and land use. Currently, the County of Hawai‘i is updating its General Plan, which is under review by the public, various agencies, and organizations. A discussion of consistency with the goals, policies, and standards of the currently adopted General Plan is provided in Table 4-5 below.

Table 4-5: County of Hawai’i General Plan	S	NS	N/A
Economic Goals **Objective**: To identify, understand, forecast, protect and promote local economic sectors and to balance economic growth with desired environmental, social and other objectives of the community.			
Goals			
(A) Provide residents with opportunities to improve their quality of life through economic development that enhances the County’s natural and social environments.	X		
(B) Economic development and improvement shall be in balance with the physical, social, and cultural environments of the island of Hawaii.	X		
(C) Strive for diversity and stability in the economic system.	X		
(D) Provide an economic environment that allows new, expanded, or improved economic opportunities that are compatible with the County's cultural, natural and social environment.	X		

(E) Strive for an economic climate that provides its residents an opportunity for choice of occupation.	X		
(F) Strive for diversification of the economy by strengthening existing industries and attracting new endeavors.	X		
(G) Strive for full employment.	X		
(H) Promote and develop the island of Hawaii into a unique scientific and cultural model, where economic gains are in balance with social and physical amenities. Development should be reviewed on the basis of total impact on the residents of the County, not only in terms of immediate short run economic benefits.	X		
Discussion: The Proposed Action will support the County's goals, for present and future generations, to ensure individuals and groups may approach their desired levels of self-reliance and self-determination. The Proposed Action involved the rehabilitation and replacement of plant facilities to ensure wastewater treatment efficiency for present and future generations. A well-maintained wastewater treatment plant ensures the proper disposal of wastewater, reducing pollution risks and supporting the overall economic stability and growth of the region. Moreover, the Proposed Action will lead to improved treatment processes, reducing the impact on the surrounding environment and enhancing the cleanliness and stability of natural systems. While the primary focus of the Proposed Action is on environmental and public health aspects, it will also indirectly contribute to the well-being of communities by ensuring the availability of clean water resources and protecting public health.			
Economic Policies **Objective**: To identify, understand, forecast, protect and promote local economic sectors and to balance economic growth with desired environmental, social and other objectives of the community.			
Policies			
(A) Assist in the expansion of the agricultural industry through the protection of important agricultural lands, development of marketing plans and programs, capital improvements and continued cooperation with appropriate State and Federal agencies.			X
(B) Encourage the expansion of the research and development industry by working with and supporting the University of Hawaii at Hilo and West Hawaii, the Natural Energy Laboratory at Hawaii Authority and other agencies' programs that support sustainable economic development in the County of Hawaii.			X
(C) Encourage the development of a visitor industry that is in harmony with the social, physical, and economic goals of the residents of the County.			X
(D) Require a study of the significant cultural, social and physical impacts of large developments prior to approval.	X		
(E) Encourage the sustainable development of the fishing industry, various forms of aquaculture, and other fresh and sea water-based activities.			X
(F) Support all levels of educational, employment and training opportunities and institutions.			X
(G) Capital improvements program shall improve the quality of existing commercial and industrial areas.			X
(H) The land, water, air, sea, and people shall be considered as essential resources for present and future generations and should be protected and enhanced through the use of economic incentives.			X

(I) Continue to encourage the research, development and implementation of advanced technologies and processes.			X
(J) Support the development of high technology industries.			X
(K) Continue to encourage development and utilization of by-products from alternate energy conversion projects.			X
(L) Identify and encourage primary industries that are consistent with the social, physical, and economic goals of the residents of the County.	X		
(M) Encourage active liaison with the private sector with respect to the County's requirements for establishing businesses on the island.			X
(N) Encourage the development of the retirement industry.			X
(O) Promote a distinctive identity for the island of Hawaii to enable government, business and travel industries to promote the County of Hawaii as an entity unique within the State of Hawaii.			X
(P) Identify the needs of the business community and take actions that are necessary to improve the business climate.			X
(Q) Support research and development that would lead to the removal of marketing restrictions on Hawaiian fruits and other perishables.			X
(R) Assist in the development of a film and video industry program to market Big Island sites and coordinate film and video activities on the Big Island.			X
(S) Assist the further development of agriculture through the protection of important agricultural lands.			X
(T) Assist in the promotion of the agriculture industry whose products are recognized as being produced on the island of Hawaii.			X
(U) Encourage the establishment of open farmers markets to allow local agricultural producers to market their products.			X
(V) Assist in cooperative marketing and distribution endeavors to expand opportunities for local agricultural products for export as well as to the local market.			X
(W) Encourage the further development of the overseas capacity of Hilo International Airport for the exportation of agricultural crops.			X
(X) Encourage the health/wellness industry.			X
(Y) Encourage new industries that provide favorable benefit-cost relationships to the people of the County. Benefit-cost relationships include more than fiscal considerations.			X
Discussion: The Proposed Action is consistent the economic policies of the County of Hawai'i General Plan. The Hilo WWTP rehabilitation and replacement of critical facilities would allow the County to provide reliable wastewater treatment and a safe working environment for operations and maintenance staff. The current condition of the Hilo WWTP constitutes a risk to public health.			

The Proposed Action would contribute to the local economy on Hawai'i Island both directly and indirectly through construction related expenditures, a portion of which would be used towards the purchase of material from local suppliers, employment of local labor, and patronage at local retail businesses as income earned through project construction is spent. Additionally, implementing the Proposed Action would provide needed work experience that would help to build the local skilled labor workforce.			
Environmental Quality **Objective**: To maintain an ecological balance for the biological, physical, social, and psychological well-being of the island community, it is essential to control pollution, develop more effective solid waste and sewer treatment programs, control soil erosion, water run-off, and sprawl development, as well as protect endangered plants and animal species.			
Goals			
(A) Define the most desirable use of land within the County that achieves an ecological balance providing residents and visitors the quality of life and an environment in which the natural resources of the island are viable and sustainable.			**X**
(B) Maintain and, if feasible, improve the existing environmental quality of the island.	**X**		
(C) Control pollution.	**X**		
Policies			
(A) Take positive action to further maintain the quality of the environment.	**X**		
(B) Reinforce and strengthen established standards where it is necessary, principally by initiating, recommending, and adopting ordinances pertaining to the control of pollutants that affect the environment.	**X**		
(C) Advise the public of environmental conditions and research undertaken on the island's environment.			**X**
(D) Encourage the concept of recycling agricultural, industrial, and municipal waste material.			**X**
(E) Encourage the State to establish air and water quality monitoring stations in areas of existing and potential urban growth.			**X**
(F) Encourage the State to continue aircraft noise abatement strategies at Hilo International Airport and the Kona International Airport at Keahole.			**X**
(G) Participate in watershed management projects to improve stream and coastal water quality and encourage local communities to develop such projects.			**X**
(H) Work with the appropriate agencies to adopt appropriate measures and provide incentives to control point and nonpoint sources of pollution.			**X**
(I) Support programs to prevent harmful alien species from becoming established.			**X**
(J) Require golf courses to implement best management practices to limit leaching of nutrients to groundwater in areas where they may affect streams or coastal ecosystems.			**X**
(K) Require implementation of the management measures contained in Hawaii's Coastal Nonpoint Pollution Control Program as a condition of land use permitting.			**X**

(L) Review the County grading and grubbing ordinances to ensure that they adequately address potential erosion and runoff problems.			X
Discussion: The Proposed Action serves to maintain environmental quality through the alleviation of critical system deficiencies at Hilo WWTP to improve wastewater treatment processes, which will control pollutants. No significant adverse impacts to the environment are anticipated as a result of the Proposed Action and would be minimized through implementation of appropriate mitigation measures and compliance with applicable local, state, and federal rules and regulations.			

Table 4-5: County of Hawai'i General Plan	S	NS	N/A
Flooding and Other Natural Hazards **Objective**: To provide flood control and other hazard mitigation on all developed properties.			
Goals			
(A) Protect human life.	X		
(B) Prevent damage to man-made improvements.	X		
(C) Control pollution.	X		
(D) Prevent damage from inundation.	X		
(E) Reduce surface water and sediment runoff.	X		
(F) Maximize soil and water conservation.	X		
Policies			
(A) Enact restrictive land use and building structure regulations in areas vulnerable to severe damage due to the impact of wave action. Only uses that cannot be located elsewhere due to public necessity and character, such as maritime activities and the necessary public facilities and utilities, shall be allowed in these areas.			X
(B) Review land use policy as it relates to flood plain, high surf, and tsunami hazard areas.	X		
(C) Update and improve the Flood Insurance Rate Maps and other flood maps in compliance with the National Flood Insurance Program (NFIP) as needed.			X
(D) Any development within the Federal Emergency Management Agency designated flood plain must be in compliance with Chapter 27.	X		
(E) Promote and provide incentives for participation in the Soil and Water Conservation Districts' conservation programs for developments on agricultural and conservation lands.			X
(F) The "Drainage Master Plan for the County of Hawaii" shall be reviewed and updated to incorporate new studies and reflect newly identified priorities.			X

(G) Development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works and in compliance with all State and Federal laws.	X		
(H) Develop a comprehensive program for the coordinated construction of a drainage network along a single drainage system.			X
(I) Explore new methods of funding for the provision of adequate drainage systems and regulating potential flood inundation areas.			X
(J) The County and the private sector shall be responsible for maintaining and improving existing drainage systems and constructing new drainage facilities.			X
(K) Develop an integrated shoreline erosion management plan that ensures the preservation of sandy beaches and public access to and along the shoreline, and the protection of private and public property from flood hazards and wave damage.			X
(L) Continue to promote public education programs on tsunami, hurricane, storm surge, and flood hazards.			X
(M) Encourage grassed shoulder and swale roadway design where climate and grade are conducive.			X
(N) Develop drainage master plans from a watershed perspective that considers non-structural alternatives, minimizes channelization, protects wetlands that serve drainage functions, coordinates the regulation of construction and agricultural operation, and encourages the establishment of floodplains as public green ways.			X
(O) Encourage and provide incentives for agricultural operators to participate in Soil and Water Conservation District Programs.			X
(P) Where applicable, natural drainage channels shall be improved to increase their capacity with special consideration for the practices of proper soil conservation, and grassland and forestry management.			X
(Q) Consider natural hazards in all land use planning and permitting.	X		
(R) Discourage intensive development in areas of high volcanic hazard.			X
Discussion: The Proposed Action will be designed in consideration of the potential hazards posed by hurricanes and other natural hazards to the extent practical. The project site is outside of the 500-year floodplain and outside of the tsunami evacuation zone.			
Historic Sites **Objective**: Identifying significant cultural resources and helping to provide the basis for their protection and management			
Policies			
(A) Agencies and organizations, either public or private, pursuing knowledge about historic sites should keep the public apprised of projects.			X
(B) Amend appropriate ordinances to incorporate the stewardship and protection of historic sites, buildings and objects.			X

(C) Require both public and private developers of land to provide historical and archaeological surveys and cultural assessments, where appropriate, prior to the clearing or development of land when there are indications that the land under consideration has historical significance.	X		
(D) Public access to significant historic sites and objects shall be acquired, where appropriate.			X
(E) Embark on a program of restoring significant historic sites on County lands. Assure the protection and restoration of sites on other public lands through a joint effort with the State.			X
(F) Encourage the restoration of significant sites on private lands.			X
(G) Collect and distribute historic sites information of public interest and keep an inventory of sites.			X
(H) Aid in the development of a program of public education concerning historic sites.			X
(I) Signs explaining historic sites, buildings and objects shall be in keeping with the character of the area or the cultural aspects of the feature.			X
(J) Develop a continuing program to evaluate the significance of historic sites.			X
(K) Develop policies to protect Hawaiian rights as identified under judicial decisions.			X
(L) Support the establishment of Hawaiian Heritage Corridors.			X
(M) All new historic sites placed on the State or Federal Register after the adoption of the general plan shall be included in the General Plan.			X
(N) Consider requiring Cultural Assessments for certain developments as part of the rezoning process.			X
(O) Recognize the importance of certain natural features in Hawaiian culture by incorporating the concept of "cultural landscapes" in land use planning.			X

Discussion: On March 13, 2023, the DOH submitted the Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Improvements Project report to the State Historic Preservation Division (SHPD) along with a letter requesting SHPD's concurrence with a project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l).

On April 11, 2023, the SHPD replied (Project No.: 2023PR00356 Doc. No.: 2304SN02 Archaeology), that the submittal indicates that ground disturbance will be within areas previously disturbed during initial construction of the WWTP in the early 1990s. SPHD indicated the proposed ground disturbance will include regrading of a drainage channel around a new anaerobic digestor, fence clearing along the perimeter of WWTP site, clearing of vegetation for construction staging area, and ground preparation for new facility buildings.

The SHPD concluded, based on the information provided, the SHPD concurs with DEM's HRS 6E-8 project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l).

Natural Beauty

Objective: To provide an assessment of impacts of development projects in order to protect, preserve and restore natural and scenic resources.

Policies

(A) Protect, preserve and enhance the quality of areas endowed with natural beauty, including the quality of coastal scenic resources.	X		
(B) Protect scenic vistas and view planes from becoming obstructed.	X		
(C) Maximize opportunities for present and future generations to appreciate and enjoy natural and scenic beauty.	X		
Discussion: The Proposed Action will not impact the objectives and policies outlined within the County of Hawai'i General Plan related to natural beauty. Construction of the proposed action would not significantly alter the topography in such a way that would diminish the aesthetic character of the general area.			
Natural Resources and Shoreline **Objective**: Enforcement of zoning and environmental laws in order to conserve natural resources and the shoreline.			
Goals			
(A) Protect and conserve the natural resources from undue exploitation, encroachment and damage.	X		
(B) Provide opportunities for recreational, economic, and educational needs without despoiling or endangering natural resources.			X
(C) Protect and promote the prudent use of Hawaii's unique, fragile, and significant environmental and natural resources.	X		
(D) Protect rare or endangered species and habitats native to Hawaii.	X		
(E) Protect and effectively manage Hawaii's open space, watersheds, shoreline, and natural areas.	X		
(F) Ensure that alterations to existing land forms, vegetation, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of an earthquake.	X		
Policies			
(A) Require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.	X		
(B) Encourage a program of collection and dissemination of basic data concerning natural resources.			X
(C) Maintain the shoreline for recreational, cultural, educational, and/or scientific uses in a manner that is protective of resources and is of the maximum benefit to the general public.			X
(D) Protect the shoreline from the encroachment of man-made improvements and structures.			X
(E) Coordinate programs to protect natural resources with other government agencies.			X
(F) Investigate methods of beach replenishment and sand erosion control.			X

(G) Promote sound management and development of Hawaii's land and marine resources for potential economic benefit.			X
(H) Encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.	X		
(I) Encourage an overall conservation ethic in the use of Hawaii's resources by protecting, preserving, and conserving the critical and significant natural resources of the County of Hawaii.	X		
(J) Encourage the protection of watersheds, forest, brush, and grassland from destructive agents and uses.			X
(K) An identification and inventory of forest lands suitable for watershed purposes should be conducted jointly by County, appropriate State and Federal agencies, and private landowners.			X
(L) Work with the appropriate State, Federal agencies, and private landowners to establish a program to manage and protect identified watersheds.			X
(M) Encourage appropriate State agencies to review and designate forest and watershed areas into the conservation district during State land use boundary comprehensive reviews.			X
(N) The installation of utility facilities, highways and related public improvements in natural and wildland areas should avoid the contamination or despoilment of natural resources where feasible by design review, conservation principles, and by mutual agreement between the County and affected agencies.	X		
(O) Encourage the continued identification and inclusion of unique wildlife habitat areas of native Hawaiian flora and fauna within the Natural Area Reserve System.			X
(P) Encourage the use of native plants for screening and landscaping.			X
(Q) Develop policies by which native Hawaiian gathering rights will be protected as identified under judicial decisions.			X
(R) Ensure public access is provided to the shoreline, public trails and hunting areas, including free public parking where appropriate.			
(S) Establish a system of pedestrian access trails to places of scenic, historic, cultural, natural, or recreational values.			X
(T) Preserve and protect significant lava tube caves.			X
(U) Ensure that activities authorized or funded by the County do not damage important natural resources.	X		
(V) Within the Kona high rainfall/fog-drip belt, ground disturbing activities such as excessive soil compaction and excessive removal of vegetative cover should be minimized and mitigated consistent with management strategies that encourage the retention of existing forested and pasture areas,			X

reforestation, minimal coverage by impervious surfaces and other strategies that encourage effective infiltration to groundwater.			
(W) Implement Council Resolution Nos. 330-96 and 58-97 in land use approvals.	X		
Create incentives for landowners to retain and re-establish forest cover in upland watershed areas with emphasis on native forest species.			X
Discussion: The Proposed Action will not impact the objectives and policies outlined within the County of Hawai'i General Plan related to natural resources and shorelines. The Project Site has been previously disturbed and the vegetation on and surrounding the project site is believed to have little conservation value for either the botanical species it contains or as animal habitat. Nonetheless, avoidance and impact minimization measures will be incorporated into the project plans and specifications. No significant adverse impacts on threatened or endangered species or their habitat are anticipated as a result of the Proposed Action. The improvements would be designed in consideration of the potential hazards posed by floods, hurricanes, earthquakes, and other natural hazards to the extent practical. While the Proposed Action may result in temporary air quality and soil erosion impacts associated with construction activities, these impacts would be mitigated through implementation of best management practices (BMPs) and adherence to federal, state, and county rules and regulations. No significant impacts on natural resources are anticipated as a result of the Proposed Action.			
Public Facilities **Objective**: To coordinate the provision of public facilities in order to use them most effectively and to maximize the effect of the public dolla			
Goals			
(A) Encourage the provision of public facilities that effectively service community and visitor needs and seek ways of improving public service through better and more functional facilities in keeping with the environmental and aesthetic concerns of the community.	X		
Policies			
(A) Continue to seek ways of improving public service through the coordination of service and maximizing the use of personnel and facilities.	X		
(B) Coordinate with appropriate State agencies for the provision of public facilities to serve the needs of the community.	X		
(C) Develop short and long-range capital improvement programs and operating budgets for public facilities and services.			X
(D) Develop and adopt an Impact Fees Ordinance.			X
(E) Capital Improvement and Operating budgets shall reflect the goals and policies of the County General Plan.			X
(F) Require a six-year, long-term, capital improvements budget by County Departments and agencies that shall be reviewed for consistency with the General Plan.			X
Public Facilities – Health and Sanitization **Objective**: To ensure that adequate health services are provided.			
Policies			

(A) Encourage the development of new health care facilities or the improvement of existing health care facilities to serve the needs of Hamakua, North and South Kohala, and North and South Kona.			X
(B) Develop and implement a cemeteries master plan for the siting of future cemeteries.			X
(C) Appropriately designed and cost-effective solid waste transfer station sites shall be located in areas of convenience and easy access to the public.			X
(D) Encourage the State to continue operation of the rural hospitals.			X
(E) Encourage the establishment or expansion of community health centers and rural health clinics.			X
(F) Continue to encourage programs such as recycling to reduce the flow of refuse deposited in landfills.			X
(G) Investigate the possibility of developing new landfill sites on the island.			X
(H) Encourage the full development and implementation of a green waste recycling program.			X
Discussion: The Proposed Action will not impact the objectives and policies outlined within the County of Hawai'i General Plan related to public facilities. The project site was previously disturbed and the current Hilo WWTP is operating with assessed critical deficiencies. The Hilo WWTP serves the needed community service providing reliable wastewater treatment. Thus, the Hilo WWTP is located in an area which has easy access by the public.			

4.2.2. General Plan Land Use Pattern Allocation Guide and Zoning

The General Plan Land Use Pattern Allocation Guide Map (LUPAG) delineates broad-brush boundaries that are graphic expressions of the General Plan policies, particularly those relating to land uses. The land use pattern in a broad, flexible design intended to guide the direction and quality of future developments in a coordinated and rational manner. These maps delineate a number of land use categories for each area.

Discussion:

The General Plan Land Use Pattern Allocation Guide (LUPAG) designation for the project area is Industrial. See Figure 4-2. Industrial areas include uses such as manufacturing and processing, wholesaling, large storage and transportation facilities, light industrial and industrial-commercial uses. The existing and proposed use of the project area is consistent with the current LUPAG designation. The subject property is zoned MG-1a, General Industrial District by the County. See Figure 4-3. The existing and proposed use of the project area is a permitted use for areas within the County industrial district.

4.3. OTHER LAND USE PLANS AND POLICIES

4.3.1. Pana'ewa Regional Plan 2016

In December 2016, the Hawaiian Homes Commission approved the Pana'ewa Regional Plan 2016. This plan was one of 21 regional plans approved across the State that was prepared with

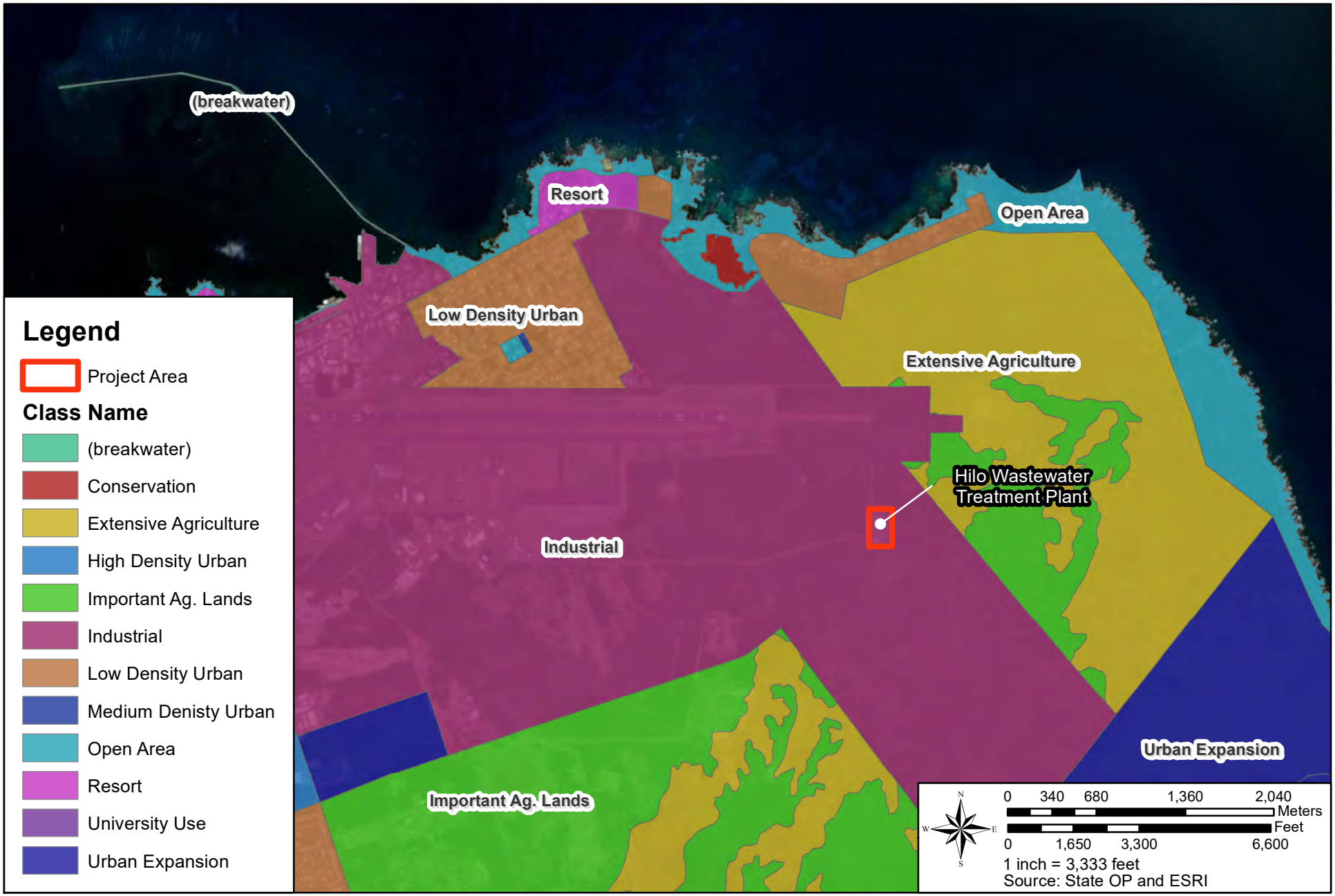
the help of the Department of Hawaiian Home Lands (DHHL) Planning Office staff and consultants. The planning process provided a platform for beneficiaries to talk as neighbors and ‘ohana about their common issues and concerns. The result was a plan that identifies priority projects that respond to issues and areas of concern within existing and planned homestead areas.

As noted in the Plan, the Pana‘ewa Planning Area encompasses approximately 3,200 acres with designated land uses consisting of Residential Homestead (approximately 425 acres), Supplemental Agricultural Homestead (approximately 1,500 acres), Subsistence Agriculture Homestead (approximately 446 acres), Community Use (approximately 40 acres), Commercial Use (approximately 235 acres), and Industrial (approximately 365 acres). The Plan also notes that the Pana‘ewa Commercial-Industrial lots generate the most trust revenue from general leases of all DHHL regions in the State.

As shown in Figure 4-4, the Hilo WWTP project site is not located on DHHL lands and outside of the Pana‘ewa Planning Area on land currently zoned as General Industrial (MG-1a) by the County. The existing and proposed use of the project area are a permitted use for areas within the County industrial district. Moreover, the DHHL’s Hawai‘i Island Plan sub area plan designates the surrounding land for a number of land uses (See Figure 4-5)

Discussion

The Proposed Action does not preclude development that would impede future development of DHHL lands. Thus, the Pana‘ewa Commercial-Industrial lots can continue to generate more trust revenue.



WILSON OKAMOTO CORPORATION

FIGURE 4-2

LAND USE PATTERN ALLOCATION GUIDE

HILO WASTEWATER TREATMENT PLANT REHABILITATION AND REPLACEMENT

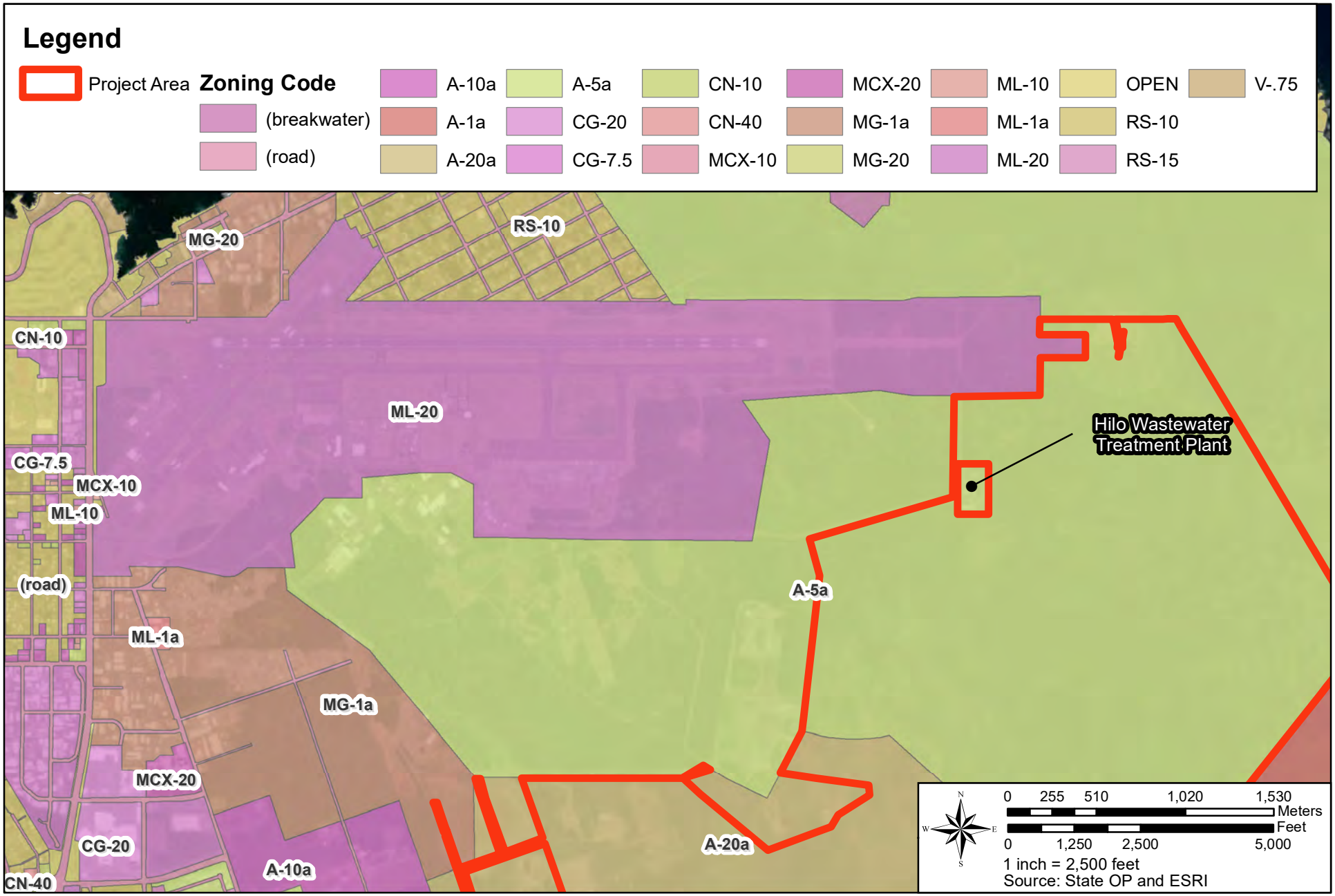
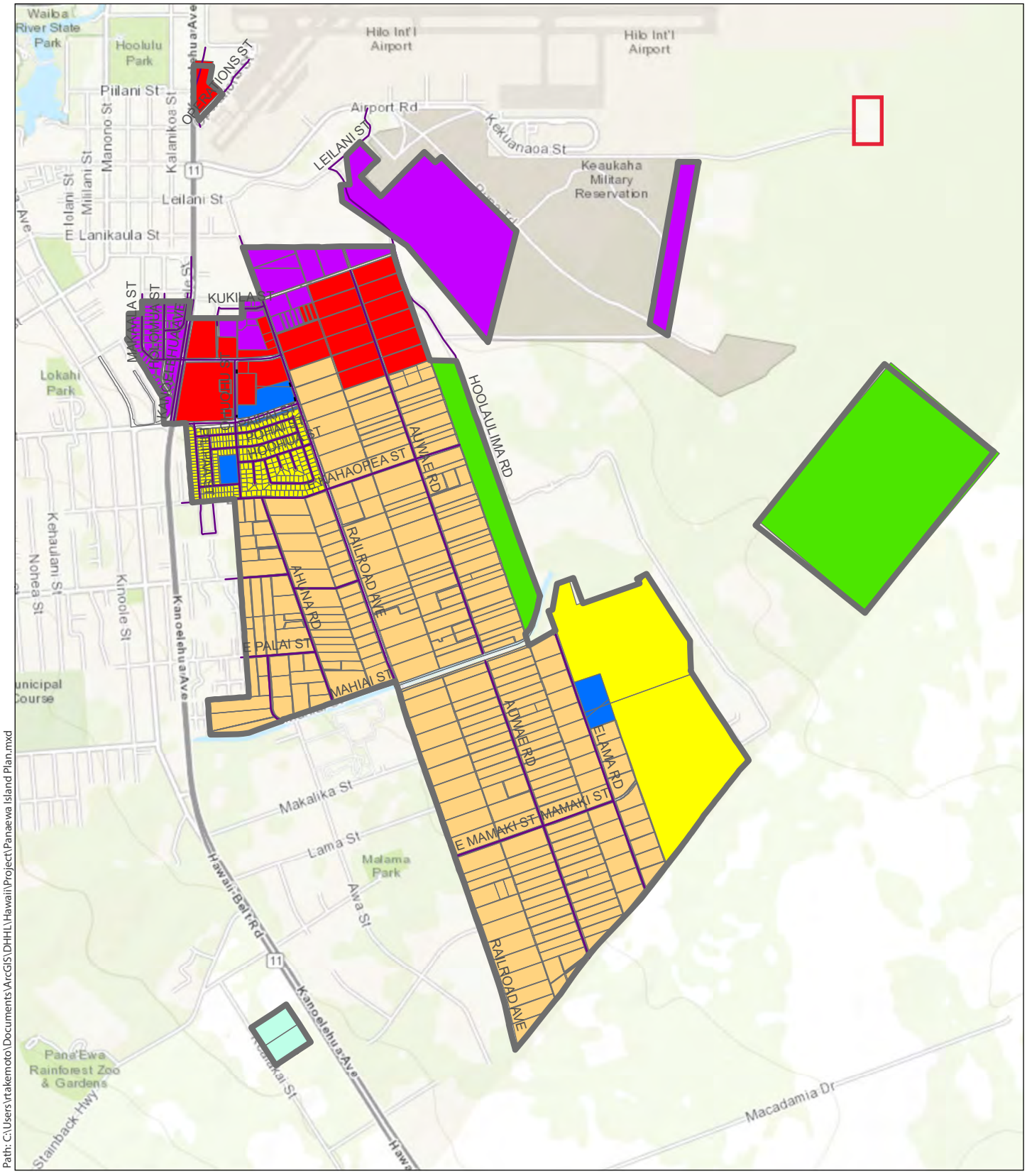


FIGURE 4-3

COUNTY OF HAWAI'I ZONING MAP



Path: C:\Users\rtakemoto\Documents\ArcGIS\DHHL\Hawaii\Project\Panaewa Island Plan.mxd

LEGEND

- Planning Area
- **DHHL Island Plan Designations**
- Residential
- Subsistence Agriculture
- Supplemental Agriculture
- Pastoral
- Project Area
- Community Use
- Commercial
- Industrial
- General Agriculture
- Special District
- Conservation

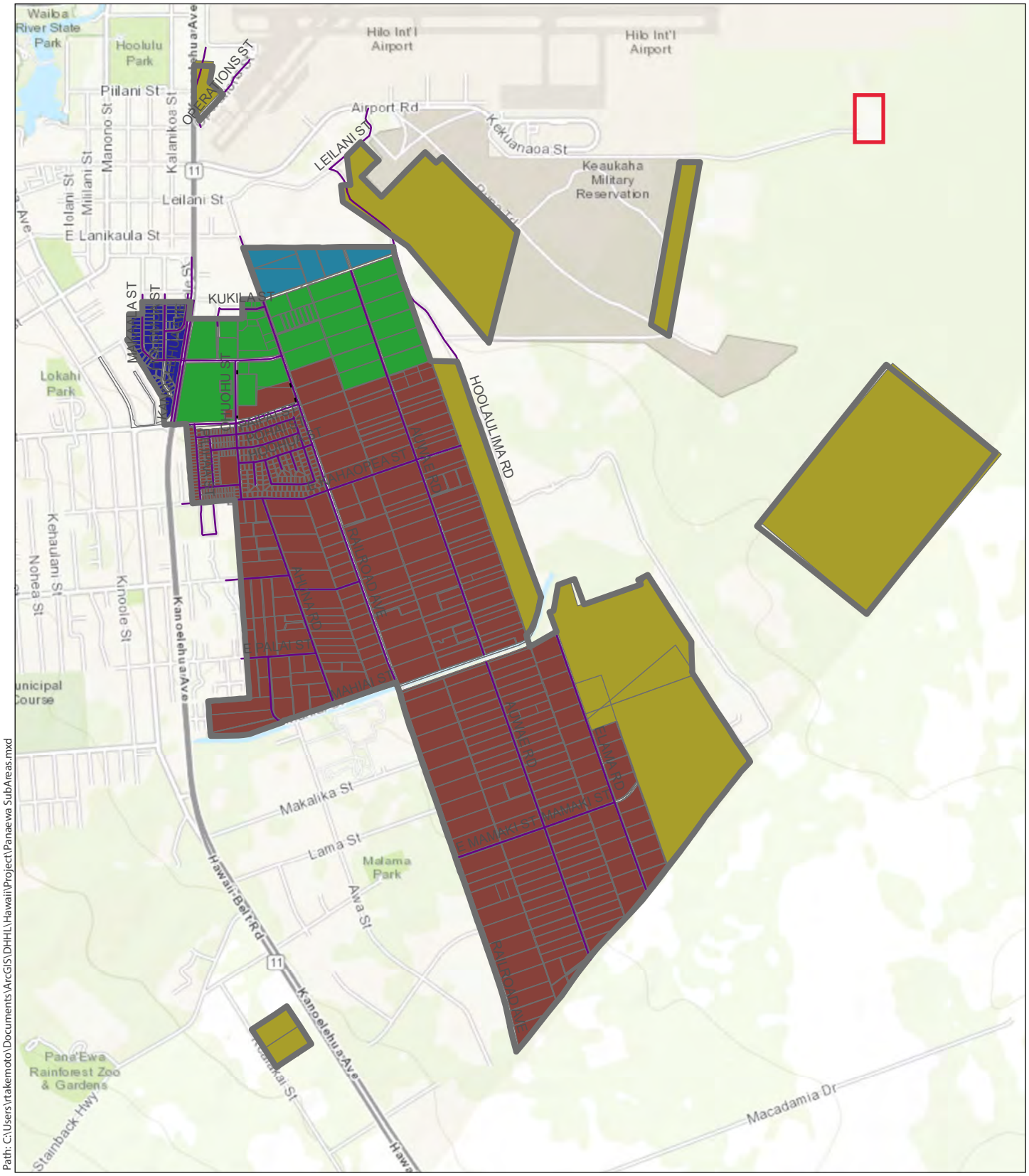
FIGURE 4-4

Hawai'i Island Plan Land Use Designations

Pana'ewa Regional Plan

0 1,750 3,500

Feet



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LEGEND

- Planning Area

Sub-Areas

- Homestead & Community Use
- Core Commercial-Industrial
- Kanoelehua Industrial
- Quarry (Yamada)
- Outlying unencumbered
- Project Area

FIGURE 4-5

Planning Sub-Areas

Pana'ewa Regional Plan

0 1,750 3,500

Feet

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CHAPTER 5: ALTERNATIVES

5. ALTERNATIVES

Hawai'i Administrative Rules, §11-200.1-18 requires an environmental assessment to identify and analyze any alternatives considered in satisfying the purpose and need of the Proposed Action. In this case, the purpose of the Proposed Action is to undertake the replacement and related improvements of the treatment processes at the Hilo WWTP to address identified deficiencies. One of the ways in which this purpose and need could be realized is by constructing a new WWTP at a different site. However, this approach would require land acquisition and extensive permitting, resulting in significant schedule delays and greater costs. It would also require the CoH-DEM to address external factors and conditions out of their control. For that reason, this alternative was not considered, and it is assumed that the proposed replacement and new facilities are necessary to ensure continued current operations and to meet future needs at the WWTP. Consequently, the only alternative eliminated from consideration consists of the no action alternative.

5.1. No Action Alternative

Under the no action alternative, improvements under the Proposed Action would not be constructed, and the project site would remain in its current configuration. The no action alternative would preclude permit approvals, as well as costs for design and construction which would otherwise be required for the proposed project. Additionally, the no action alternative would avoid insignificant environmental impacts that would occur as a result of implementing the proposed action along with the need to implement appropriate mitigation measures, as discussed in Chapter 3 of this EA.

As noted previously, the Hilo WWTP was constructed in the early 1990's and was originally designed to provide secondary treatment of wastewater for an average dry weather and peak wastewater flow of 5.0 and 13.0 million gallons per day (mgd), respectively. Current dry weather flows are approximately 3.0 mgd.

Recent condition assessments and a resulting master plan have identified a range of critical system deficiencies within the WWTP which threaten reliable treatment and the ability to provide a safe working environment for operations and maintenance staff. These deficiencies include severe concrete deterioration, malfunctioning equipment, and safety hazards. In addition, influent five-day biochemical demand (BOD) and total suspended solids (TSS) concentrations are greater than those which served as the basis of the original plant design.

The existing condition of the WWTP poses a threat to the safe and normalized operations of the WWTP itself. As the Hilo WWTP is the only WWTP that serves the region, it is considered to be critical infrastructure. For these reasons, this alternative would fail to satisfy the purpose and need of the proposed action, and thus is not a feasible alternative.

5.2. Conventional Activated Sludge Alternative

As discussed in Section 2.2.6 of this DEA, the COH-DEM is evaluating the construction of a new conventional activated sludge (CAS) system. With this alternative, the new solids contact channel and snail removal trap, as well as the rehabilitation of the existing solids contactor, contactor channel, and biotowers would no longer be required (see Sections 2.2.5, 2.2.8, and 2.2.10).

The CAS system would be constructed to the east of the existing secondary clarifiers and would serve to reduce BOD and TSS in the wastewater. The system would consist of 3, new approximately 208 foot long, 18 foot wide, and 17 foot deep bioreactors or aeration basins; new approximately 1,500 square foot blower building; and new WAS pumpstation. If the CAS alternative is selected, the existing biotowers, solids contact basins, and solids contact channel would be demolished.

CHAPTER 6: DETERMINATION

6. DETERMINATION

Short-term construction impacts include temporary disruption to the project site and surrounding areas, temporary decline in air quality from construction activities, and temporary increases in noise levels. Once construction has been completed, the short-term adverse impacts will no longer occur.

Based on analysis of the impacts, the CoH-DEM anticipates a Finding of No Significant Impact (FONSI) for the Proposed Action. The significance criteria to make this anticipated determination are set forth below and in Hawai'i Administrative Rules 11-200.1 (Environmental Impact Statement Rules). Potential impacts of the proposed improvements have been evaluated in accordance with the significance criteria of Hawai'i Administrative Rules §11-200.1-13. Discussion of the project's conformance to the criteria is presented as follows:

(1) Irrevocably commit a natural, cultural, or historic resources;

Implementation of the Proposed Action will require an irrevocable commitment of energy, labor, capital, and materials for construction.

No natural or cultural resources of significance were identified within the Project Area. Moreover, the Proposed Action will occur in an area that has been subjected to prior disturbance related to the development of the existing treatment plant. Hence, it is unlikely that any unknown cultural/historic properties and/or human skeletal remains would be encountered or disturbed by the various development and operation activities of the Proposed Action. In the event of unexpected discovery of historic or archaeological resources, the SHPD will be immediately notified for appropriate response and action. Thus, it is anticipated that if any significant plants or landscapes need to be removed or altered to implement the Proposed Action, the plants or landscapes would be returned to existing conditions to the extent feasible or enhanced.

(2) Curtail the range of beneficial uses of the environment;

The Proposed Action will not curtail the range of beneficial uses of the environment. The proposed use of the site is a continuation of this existing use, which is compatible with the surrounding uses. No new uses or improvements are being proposed that would significantly intensify the land use, alter the land, or commit resources that would curtail the range of future beneficial uses of the environment.

(3) Conflict with the State's environmental policies or long-term environmental goals established by law;

The Proposed Action will not conflict with the long-term environmental policies, goals, and guidelines of the State of Hawai'i as noted throughout Chapter 4 of the EA.

Moreover, short-term impacts associated with various construction activities will be mitigated through best management practices noted throughout Chapter 3 of the EA.

(4) Have a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State;

The Proposed Action will not have a significant adverse effect on the economic welfare, social welfare, or cultural practices of the State as discussed in Chapters 3 and 4 of the EA.

In the short-term, construction jobs will be created to develop the Proposed Action and construction expenditures will provide positive benefits to the local economy but not at a level that would generate any significant population expansion.

In the long-term, the Proposed Action is intended to to undertake the replacement and related improvements of critical facilities and then subsequent improvements to the treatment processes at the WWTP to address identified deficiencies. These deficiencies include severe concrete deterioration, malfunctioning equipment, and safety hazards. In addition, influent five-day biochemical oxygen demand (BOD) and total suspended solids (TSS) concentrations are greater than those which served as the basis of the original plant design. Moreover, the existing condition of the facility poses a threat to the safe and normalized operations of the WWTP itself. As the Hilo WWTP is the only wastewater facility that serves the region, it is considered to be critical infrastructure.

The Proposed Action will not have an effect on cultural resources or practices at the project site as none exist as discussed in Section 3.7 of the EA.

(5) Have a substantial adverse effect on public health;

The Proposed Action would contribute to the long-term sustainability of the WWTP by rehabilitating and replacing critical plant facilities for the benefit of public health. Therefore, implementation and long-term operation of the Proposed Action is not anticipated to have a substantial short- nor long-term adverse impacts on public health. Typical short-term construction-related impacts (e.g., noise and air quality) are anticipated; however, they will be temporary in nature and will comply with Federal, State, and County regulations as discussed in Chapter 3 of the EA.

(6) Involve adverse secondary impacts, such as population changes or effects on public facilities;

The Proposed Action involves construction of new facilities and rehabilitation of existing facilities to improve the treatment processes at the Hilo WWTP. The proposed use is consistent with the existing use of the site and is compatible with surrounding uses. The Proposed Action is not anticipated to induce population growth and, therefore, no secondary impacts associated with population changes or effects on public facilities are anticipated with implementation of the proposed action.

(7) *Involve a substantial degradation of environmental quality;*

The Proposed Action is not anticipated to substantially degrade environmental quality. Long-term impacts to air and water quality, noise levels and natural resources will be minimal. Typical short-term construction-related impacts (e.g., noise and air quality) are anticipated, but will be temporary and will comply with State and County regulations as discussed in Chapter 3.

(8) *Be individually limited but cumulatively have substantial adverse effect upon the environment or involves a commitment for larger actions;*

The Proposed Action is not anticipated to have a considerable effect upon the environment as discussed in Chapter 3 of the EA. There are no commitments for further action beyond the scope presented within this EA.

(9) *Have a substantial adverse effect on a rare, threatened, or endangered species, or its habitat;*

No listed or protected plant species are known to occur at the project site. Rare, threatened, or endangered fauna are not known to utilize the site for either habitat or foraging purposes.

The Proposed Action is not anticipated to have any adverse effects on rare, threatened, or endangered species or any critical habitat areas. With the exception of the Hawaiian hoary bat, no mammalian species currently protected or proposed for protection under either the federal or State of Hawai‘i endangered species programs were detected or expected during survey of the project area as discussed in Section 3.5. FWS stated that the potential for adverse effects to the Hawaiian hoary bat, Hawaiian goose, Hawaiian waterbirds, Hawaiian seabirds, and the federally listed plants are insignificant or discountable. The FWS concurred with the DOH determination that the Hilo WWTP improvements project may affect but is not likely to adversely affect these federally listed species. In general, to reduce potential impacts, the mitigation measures presented in Section 3.5.1 are recommended.

(10) *Have a substantial adverse effect on air or water quality or ambient noise levels;*

No long-term significant impacts to air quality, water quality, or noise levels within the project site are anticipated as a result of the construction and operation of the Proposed Action.

Respective contractors will be responsible for minimizing air quality impacts during the various phases of construction. Exhaust emissions from construction vehicles are anticipated to have negligible impacts on air quality in the project vicinity as the emissions would be relatively small and readily dissipated.

No short or long-term significant impacts on surface and/or coastal waters in the project vicinity are anticipated during construction or operation of the proposed action. There are no streams or wetlands on or within close proximity to the project site. For proposed ground disturbing activities, applicable erosion control measures and best management practices will be implemented in order to mitigate any possible adverse effects relating to

soil erosion and runoff. Permanent sediment control measures will be used once construction is completed.

Coordination will be undertaken with the appropriate agencies during permitting and construction to ensure that the proposed action will not result in significant impacts regarding surface and coastal waters. A NPDES permit for storm water runoff from construction activities would be required should individual and/or cumulative soil disturbances at the project site exceed one acre of land area. Any discharges related to project construction or operation activities will comply with applicable State Water Quality Standards as specified in HAR, Chapter 11-54 Water Quality Standards and Chapter 11-55 Water Pollution Control. Excavation and grading activities will be regulated by applicable provisions of the County's grading ordinance.

In the short and long-term, no significant impacts on noise levels are anticipated as a result of the construction and operation of the Proposed Action. Impacts from construction noise are not anticipated to be significant as the project site and much of the surrounding land uses are considered airport or industrial related. Any potential impacts would be mitigated by complying with the State DOH Administrative Rules, Title 11, Chapter 46 "Community Noise Control" regulations. Once construction has been completed, noise impacts would be consistent with existing conditions.

(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;

No short or long-term significant impacts are anticipated as the project site is not located within an environmentally sensitive area.

The project site is located about 1.29 miles from the nearest coastline. There is no surface or coastal water body such as a stream, river, pond, lake, or ocean located nearby. No impacts to these resources are anticipated. The new facilities and other improvements would be designed in consideration of the potential hazards posed by hurricanes and other natural hazards to the extent practical. The project site is outside of the 500-year flood plain and outside of the tsunami evacuation zone. A drainage study would be performed to assess any potential changes in drainage patterns that may occur as a result of the Proposed Action. The WWTP would be designed to accommodate anticipated increases in runoff. The final drainage system design would be coordinated with the County of Hawai'i Department of Public Works (DPW) prior to construction.

According to the FIRM, the project site is designated Zone X, an area of minimal flood hazard. Generally, runoff at the project site from rainfall currently sheet flows and percolates within the upper layers of the site. Some temporary ponding may occur at natural low points in the topography during and immediately after heavy rainstorm events. However, this water quickly infiltrates into the ground once heavy rains have subsided.

(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,

The project site is not located near any South Hilo natural beauty sites. View planes of the project site from the surrounding area is generally obstructed by the surrounding vegetation that provides a visual barrier for the project site. Construction of the Proposed Action would not significantly alter the topography in such a way that would diminish the aesthetic value of the area.

(13) Requires substantial energy consumption or emit substantial greenhouse gases.

The construction and operation of the Proposed Action will not require a significant level of energy consumption. Implementation of the Proposed Action will result in the short-term irrevocable release of GHGs from construction activities associated with the development of the proposed improvements. However, these activities will be temporary and the quantities of GHGs released will be negligible.

In the long-term, the Proposed Action is not expected to have a significant impact on traffic operation; therefore, no significant impacts on air quality due to an increase in greenhouse gases is anticipated. Due to the minimal impact of the Proposed Action, further mitigation of any potential long-term impacts is not anticipated to be required.

Energy requirements in the long-term would be minimal and similar to the energy demands of the current site. It is anticipated energy requirements could be supported by existing infrastructure.

Based on these findings and the assessment of potential impacts, the Proposed Action does not require preparation of an Environmental Impact Statement and an anticipated FONSI is determined.

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CHAPTER 7: CONSULTATION

7. CONSULTATION

7.1. EA Early Consultation

The following agencies and organizations were consulted during the preparation of the Draft EA for the project. Of the 9 parties that formally replied during the pre-assessment period, some had no comments while others provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments and responses are reproduced in Appendix A.

Federal Agencies

- US Army Corps of Engineers, Honolulu District
- US Department of Agriculture Natural Resources Conservation Service
- ✓✓ US Fish and Wildlife Service
- National Oceanic and Atmospheric Administration
- US Department of Transportation Federal Aviation Administration

State Agencies

- Department of Agriculture
- Department of Accounting and General Services
- Department of Business, Economic Development & Tourism (DBED&T)]
  - DBED&T Land Use Commission
  - DBED&T Office of Planning and Sustainable Development
  - DBED&T State Energy Office
- ✓✓ Department of Hawaiian Home Lands (DHHL)
  - DHHL – East Hawai'i District Office
- Department of Health (DOH)
  - ✓✓ DOH – Clean Water Branch
  - DOH- Environmental Management Office
  - DOH– Hazard Evaluation and Emergency Response
  - DOH– Safe Drinking Water Branch
  - DOH- Solid and Hazardous Waste Branch
  - ✓✓ DOH– Wastewater Branch
- ✓✓ Department of Land and Natural Resources (DLNR)
  - DLNR State Historic Preservation Division
  - ✓ DLNR Land Division
  - ✓✓ DLNR Office of Conservation and Coastal Lands
- ✓✓ Department of Transportation
- Office of Hawaiian Affairs
- University of Hawai'i

County of Hawai'i

- Fire Department
- ✓ Police Department
- Planning Department
- Research and Development

Department of Public Works
Department of Parks and Recreation
Department of Water Supply

Elected Officials

State Senator Lorraine R. Inouye, Senate District 1
Representative Chris Todd, House District 3
Councilmember Susan Keohokapu-Lee Loy, Council District 3

Utilities

Hawaiian Telcom
Hawaiian Electric
Hawai‘i Gas
Spectrum Hawai‘i

Other Interested Parties and Individuals

Hawai‘i State Library
Hilo Public Library
Keaukaha Military Reservation
Keaukaha Community Association
Keaukaha-Pana‘ewa Farmers Association
✓✓ Pana‘ewa Hawaiian Homelands Community Association

CHAPTER 8: REQUIRED PERMITS AND APPROVALS / FEDERAL CROSS CUTTERS

8. REQUIRED PERMITS, APPROVALS, AND FEDERAL CROSS CUTTERS

8.1. Permits and Approvals

The following is a list of permits, approvals, and reviews that may be required prior to construction and operation of the Proposed Project.

Federal

Federal Emergency Management Agency

- Title 44 of the Code of Federal Regulations (44CFR) Compliance

Federal Aviation Administration

- FAA Form 7460-1 Notice of Proposed Construction or Alteration

State of Hawai'i

Department of Land and Natural Resources

- Chapter 6E, HRS, State Historic Preservation Law

Department of Health

- Disability and Communication Access Board
- Pollution Control - Noise Permit
- Air Pollution Control Permit

County of Hawaii

- Special Permit
- Plan Approval
- Grading Permit
- Building Permit
- Electrical Permit
- Plumbing Permit
- Fence Permit

8.2. Federal Cross Cutters

This project may be funded by federal funds provided by the U.S. Environmental Protection Agency (EPA) through the State of Hawai'i's Clean Water State Revolving Fund (CWSRF) Program. As such, the State of Hawai'i Department of Health (DOH) must conduct an environmental review of projects funded under the CWSRF as required under the Code of Federal Regulations (CFR), using the EPA-approved State Environmental Review Process. In addition, the State must comply with the Federal cross-cutting authorities set forth in 40 CFR §35.3145 for the CWSRF. These requirements are set forth as "cross cutters" described as follows.

8.2.1. Archaeological and Historic Preservation Act (54 U.S.C. §3120502)

The Archaeological and Historic Preservation Act (AHPA), also known as the Archaeological Recovery Act and the Moss-Bennett bill, was passed and signed into law in 1974. It amended and expanded the Reservoir Salvage Act of 1960. The AHPA built upon the national policy, set out in the Historic Sites Act of 1935, "to provide for the preservation of historic American sites, buildings, objects, and antiquities of national significance". The AHPA expanded the policy by focusing attention on significant resources and data but does not require that they be shown to be of "national" significance. The AHPA required that federal agencies provide for "...the preservation of historical and archeological data (including relics and specimens) which might otherwise be irreparably lost or destroyed as the result of...any alteration of the terrain caused as a result of any Federal construction project of federally licensed activity or program."

54 U.S.C. §312502, (a) states: "When any Federal agency finds, or is notified, in writing, by an appropriate historical or archeological authority, that its activities in connection with any Federal construction project or federally licensed project, activity, or program may cause irreparable loss or destruction of significant scientific, prehistorical, historical, or archeological data, the agency shall notify the Secretary, in writing, and shall provide the Secretary with appropriate information concerning the project, program, or activity…"

54 U.S.C. 312502 (b) states: "When any Federal agency provides financial assistance by loan, grant, or otherwise to any private person, association, or public entity, the Secretary, if the Secretary determines that significant scientific, prehistorical, historical, or archeological data might be irrevocably lost or destroyed, may, with funds appropriated expressly for this purpose-

(A) Conduct, with the consent of all persons, associations, or public entities having a legal interest in the property, a survey of the affected site; and

(B) Undertake the recovery, protection, and preservation of the data (including analysis and publication)."

On March 13, 2023, the DOH submitted the Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Improvements Project report to the State Historic Preservation Division (SHPD) along with a letter requesting SHPD's concurrence with a project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l).

On April 11, 2023, the SHPD replied (Project No.: 2023PR00356 Doc. No.: 2304SN02 Archaeology), that the submittal indicates that ground disturbance will be within areas previously disturbed during initial construction of the WWTP in the early 1990s. SPHD indicated the proposed ground disturbance will include regrading of a drainage channel around a new anaerobic digester, fence clearing along the perimeter of WWTP site, clearing of vegetation for construction staging area, and ground preparation for new facility buildings.

The SHPD concluded, based on the information provided, the SHPD concurs with DEM's HRS 6E-8 project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l).

Given the findings of the March 2023 Literature View and Field Inspection report and the findings that the absence of any surface archaeological features in the project area and the extent of prior ground disturbance, further archaeological study is not recommended for the Hilo Wastewater WWTP Rehabilitation and Replacement Project. Further, based on the SHPD concurrence of the “no historic properties affected”, there will be no adverse impact to historic resources from construction of the Proposed Action.

Notwithstanding the above findings, CoH-DEM and its contractors would be required to comply with all State and County rules and regulations regarding the preservation of archaeological and historic sites. The construction documents would include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work would cease immediately and the SHPD would be contacted, which would assess the significance of the find and recommend appropriate mitigation measures if necessary. The CoH-DEM would also consult with SHPD in compliance with State historic preservation review requirements to determine appropriate mitigation measures for the project.

8.2.2. Bald and Golden Eagle Protection Act (16 U.S.C. §§ 668-668c)

The Bald Eagle Protection Act (16 U.S.C. §§ 668-668c) prohibits any act to take, possess, sell, purchase, barter, offer to sell, purchase or barter, transport, export or import, at any time or in any manner any bald eagle commonly known as the American eagle or any golden eagle, alive or dead, or any part, nest, or egg thereof of the foregoing eagles.

No bald or golden eagles are found in Hawai‘i.

8.2.3. Clean Air Act (U.S.C. §7501)

The Federal Air Pollution Control Act 42 (U.S.C. §7506(c), Clean Air Act (CAA), was preceded by a series of legislation affecting air quality. Over the years, there have been a number of amendments adopted related to air quality and all called the CAA. The first federal legislation regarding air pollution control was the Clean Air Act of 1963. The Clean Air Act of 1970 (1970 CAA) authorized the development of comprehensive federal and state regulations to limit emissions from both stationary (industrial) sources and mobile sources.

The 1970 CAA set forth four major regulatory programs affecting stationary sources: the National Ambient Air Quality Standards (NAAQS), State Implementation Plans (SIPs), New Source Performance Standards, and National Emission Standards for Hazardous Air Pollutants.

In Hawai'i, the DOH, Clean Air Branch, Air Quality program is defined by HAR Chapter 11-60 and serves as the SIP approved by the Environmental Protection Agency (EPA).

The Department of Health, Clean Air Branch, monitors the ambient air in the State of Hawaii for various gaseous and particulate air pollutants. The U.S. Environmental Protection Agency (EPA) has set national ambient air quality standards (NAAQS) for six criteria pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, ozone, and particulate matter (PM_{10} and $PM_{2.5}$). Hawaii has also established a state ambient air standard for hydrogen sulfide. The primary purpose of the statewide monitoring network is to measure ambient air concentrations of these pollutants and ensure that these air quality standards are met. During 2021, the stations were initially maintained and the data collected by the Air Quality Monitoring Section of the State Laboratories Division. Those responsibilities were assumed by the Clean Air Brach towards the end of the year.

The DOH operates a network of air quality monitoring stations at various locations around the State. In December 2021, the DOH issued the Annual Summary 2021 Air Quality Data report which provides the results from the network of air quality monitoring stations. The DOH air quality monitoring site closest to the Hilo WWTP is located near the Hilo Medical Center, which lies about 6.2 miles west of the WWTP. Both sulfur dioxide (SO_2) and particulate matter ($PM_{2.5}$) are monitored at this site.

Measurements of SO_2 concentrations at this location during the 2011-2015 monitoring period were consistently low with annual average concentrations below 0.005 ppm, which is below the federal and State standard of 0.03 ppm. No exceedances of the federal/State 3-hour and 24-hour AAQS for SO_2 were recorded at the Konawaena High School monitoring station.

Volcanic eruptions are considered natural events and therefore EPA may exclude the exceedances of the 1-hour NAAQS from attainment determinations.

8.2.4. Coastal Barrier Resources Act (16 U.S.C. §3501)

In 1982, Congress passed the Coastal Barrier Resources Act (CBRA) (16 U.S.C. §3501) to encourage the conservation of hurricane prone, biologically rich coastal barriers by restricting federal expenditures that encourage development, such as Federal flood insurance through the National Flood Insurance Program.

The Coastal Barrier Resources Reauthorization Act of 2000 reauthorized the CBRA and directed the U.S. Fish and Wildlife Service to complete a Digital Mapping Pilot Project that includes digitally produced draft maps for up to 75 John H. Chafee Coastal Barrier Resources System (CBRS) areas and a report to Congress that describes the feasibility and costs for completing digital maps for all CBRS areas.

The purpose the CBRA is to minimize the loss of human life, wasteful expenditure of federal revenues, and the damage to fish, wildlife, and other natural resources associated with the coastal barriers along the Atlantic and Gulf coasts and along the Great Lakes by restricting future federal expenditures and financial assistance which have the effect of encouraging development of coastal barriers.

Based on its location, the CBRA is not applicable to Hawai'i.

8.2.5. Coastal Zone Management Act

The Coastal Zone Management Act of 1972 (CZMA) (16 U.S.C §§ 1451-1464) was passed to establish a national policy to preserve, protect, develop, and where possible, restore or enhance, the resources of the Nation's coastal zone for this and succeeding generations and to encourage coastal states to develop and implement coastal zone management (CZM) programs. Each federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved state management programs. Each federal agency carrying out an activity subject to the Act shall provide a consistency determination to the relevant state agency designated under § 1455(d)(6) of this title at the earliest practicable time.

In 1977, Hawai'i enacted HRS 205A (Coastal Zone Management). The CZM area encompasses the entire state, including all marine waters seaward to the extent of the state's police power and management authority, including the 12-mile U.S. territorial sea and all archipelagic waters. The objective and policies of the CZM Program are set forth in HRS § 205A-2. See detail discussion in Section 4.1.5 (Hawai'i Coastal Zone Management Program). A summary follows.

1) Recreational Resources

Objective:

(A) Provide coastal recreational opportunities accessible to the public.

Policies:

(A) Improve coordination and funding of coastal recreational planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

i. Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

ii. 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;

iii. Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

iv. Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

v. Ensuring public recreational use 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;

vi. Adopting water quality standards and regulating point and nonpoint sources of pollution to protect, and where feasible, restore the recreational value of coastal waters.

vii. *Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and*

viii. *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: The Hilo WWTP is located about 1.29 miles (6,800 feet) from the shoreline and, as such, coastal recreational resources will not be affected.

2) Historic Resources

Objective:

(A) 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:

(A) Identify and analyze significant archaeological resources;

(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and

(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

Discussion: In March 2023, an Archaeological Literature Review and Field Inspection was completed for the Hilo Wastewater Treatment Plant Improvements Projects, Waiākea Ahupua‘a, South Hilo District, Hawai‘i Island, TMK: (3) 2-10-013:002 por. project. The purpose of the literature review and field investigation was to conduct historical, cultural, and archaeological background research and then followed by a field inspection of the Hilo WWTP 14.899-acre project site to determine the likelihood that archaeological historic properties may be affected by the project.

The literature review findings showed a number of studies have been conducted in various areas of Hilo, including an archeological reconnaissance survey conducted in 1988 which as part of the February 1989 Final Supplemental Environmental Impact Statement (FSEIS) for construction of the Hilo WWTP. The 1988 reconnaissance survey found no archeological features within the area of the project site and recommended no additional archeological work.

The March 2023 literature review indicated the project site and surrounding area were likely used for collection of natural resources, such as the prevalent lauhala (leaves of the hala plant) used for weaving, and for intermittent, small-scale agriculture, with the natural depressions in lava flows used for mulch-type agriculture.

The various components of the project site were inspected over three separate days: 12 July 2022, 7 October 2022, and 31 January 2023. The field inspection generally consisted of a 100 percent pedestrian coverage of the project site. Photographs were taken of the general project area, as well as each of the improvement sites.

The field inspection confirmed the entire 14.899-acre WWTP project site has been subjected to extensive prior disturbance related to the development of the existing WWTP. All areas within the developed area of the WWTP and the adjacent areas have been graded and subjected to variable levels of additional development, completely altering the natural terrain. The field inspection showed no archaeological features representing potential historic properties were encountered in any portion of the project 14.899-acre project site.

Based on the absence of any surface archaeological features in the project area and the extent of prior ground disturbance of the 14.899-acre project site, the Archaeological Literature Review and Field Inspection stated additional archaeological study is not recommended for the Hilo Wastewater Treatment Plant Improvements project.

As described in Section 3.6 of this DEA (Historic, Archaeological, and Cultural Resources), the SHPD concurs with DEM's HRS 6E-8 project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l).

3) Scenic and Open Space Resources

Objective:

(A) Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:

(A) Identify valued scenic resources in the coastal zone management area;

(B) 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;

(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and

(D) Encourage those developments which are not coastal dependent to locate in inland areas.

Discussion: The Hilo WWTP is located about 1.29 miles (6,800 feet) from the shoreline and, as such, coastal scenic and open space resources will not be adversely affected.

4) Coastal Ecosystems

Objective:

(A) Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Improve the technical basis for natural resource management;

(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;

(D) 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

(E) 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: The Hilo WWTP is located about 1.29 miles (6,800 feet) from the shoreline and, as such, coastal ecosystems will not be adversely affected.

5) Economic Uses

Objective:

(A) Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

(A) Concentrate coastal dependent development in appropriate areas;

(B) Ensure that coastal dependent developments such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and

(C) 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:

i. Use of presently designated locations is not feasible;

ii. Adverse environmental effects are minimized; and

iii. *The development is important to the State's economy.*

Discussion: The Hilo WWTP is located about 1.29 miles (6,800 feet) from the shoreline and, as such, the facility has been sited in a suitable location to serve the community.

6) Coastal Hazards

Objectives:

(A) Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policies:

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;

(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;

(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program;

(D) Prevent coastal flooding from inland projects.

Discussion: The Hilo WWTP is located about 1.29 miles (6,800 feet) from the shoreline and, between 33 to 39 feet above mean sea level (msl). Based on the location, the Hilo WWTP facility will not be subject to (and will not exacerbate) coastal hazards, and do not include improvements related to tsunami, storm waves, stream flooding erosion, subsidence and pollution.

7) Managing Development

Objective:

(A) Improve the development review process, communication, and public participation in the management of coastal resource and hazards.

Policies:

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;

(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and

(C) 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: This Draft Environmental Assessment will be filed with the State of Hawai'i Environmental Review Program which will make the document available to the public. This will allow for public comment on the Proposed Action.

8) Public Participation

Objective:

(A) Stimulate public awareness, education, and participation in coastal management.

Policies:

(A) Promote public involvement in coastal zone management processes;

(B) 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

(C) Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.

Discussion: This Draft Environmental Assessment will be filed with the State of Hawai'i Environmental Review Program which will make the document available to the public. This will allow for public comment on the Proposed Action. Further, the Hilo WWTP is located about 1.29 miles (6,800 feet) from the shoreline and will not affect coastal management of coastal resources.

9) Marine Resources

Objective:

(A) Promote the protection, use, and development of marine and coastal resources to assure their sustainability.

Policies:

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;

(C) 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;

(D) 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

(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Discussion: The Hilo WWTP is located about 1.29 miles (6,800 feet) from the shoreline and, as such, and, as such, facility does not include improvements that will affect development of marine and coastal resources.

8.2.6. Endangered Species Act (16 U.S.C. § 1531)

On December 28, 1973, the Endangered Species Act (16 U.S.C. § 1531) was passed and, over the years, has been amended a number of times. The stated purpose of the original Act was to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, to provide a program for the conservation of such endangered species and threatened species, and to take such steps as may be appropriate to achieve the purposes of various related treaties and conventions. The provisions of the Act are administered by the FWS and the National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS). The FWS has primary responsibility for terrestrial and freshwater organisms, while NOAA/NMFS is mainly responsible for marine wildlife.

Section 7 of the Act, Interagency Cooperation (16 U.S.C. § 1536), states each federal agency shall, in consultation with and with the assistance of the Secretary of the Interior, ensure that any action authorized, funded, or carried out by such agency (an "agency action") is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined, after consultation as appropriate with affected states, to be critical, unless such agency has been granted an exemption for such action.

As stated in Section 3.5, biological resources surveys of the project site were conducted on July 18, 2022, October 7, 2022, and February 15, 2023. A summary report dated March 2023 provides an

overall summary of the findings of the three biological resources surveys which is included in this report in Appendix A.

The surveys found vegetation within the currently fenced area of the Hilo WWTP is entirely short stature herbaceous species adapted to growing in minimal soil and conditions of regular disturbance (ruderal habitat). Overall, the vegetation is dominated by introduced (non-native) species with a total of 98 plant species were documented, with 12 being native (indigenous or endemic), and 5 Polynesian introductions. The biological resources survey found the flora within the WWTP project site is unremarkable. No species of any special conservation concern are present. No endangered or threatened species were found as listed by the FWS or the State of Hawai'i Department of Land and Resources. Nine native (indigenous) plant species are present, but none is considered rare in the Hilo area nor across the Hawaiian Islands.

The survey found a total of 11 species, representing eight separate families, were recorded during the three surveys. All the avian species recorded are alien to the Hawaiian Islands. No native species were detected nor expected given the habitats present within the developed area Hilo WWTP project site and the immediately adjacent area.

Additionally, on February 17, 2023, the DOH initiated informal consultation with the U.S. Fish and Wildlife Service (FWS) provided Technical Assistance (Ref 01EPIF00-2020-TA-0352). The FWS stated their reply was in accordance with regarding the Hilo WWTP project and requested concurrence on the proposed determination under Section 7 of the Endangered Species Act and that files, as it pertains to listed species, indicate the following federally listed species (ESA). Further, the DOH requested a list of threatened and endangered plant and animal species and critical habitats within the project site and/or action area. On May 2, 2023, the FWS replied to the DOH and provided species the Hilo WTTP improvements may occur or transit through the vicinity of the proposed project area: the endangered affect, but not likely to adversely affect (Appendix B):

- Ōpeʻapeʻa or Hawaiian hoary bat (*Lasiurus cinereus semotus*),
- Nēnē or Hawaiian goose (*Branta sandvicensis*),
- Hawaiian waterbirds, including koloa or Hawaiian duck (*Anas wyvilliana*), aeʻo or Hawaiian stilt (*Himantopus mexicanus knudseni*), and ʻalae keʻokeʻo or Hawaiian coot (*Fulica americana alai*),
- Hawaiian seabirds, including the ʻuaʻu or Hawaiian petrel (*Pterodroma sandwichensis*), ʻaʻo or Newell's Townsend's shearwater (*Puffinus auricularis newelli*), and the ʻakēʻakē or Hawaiʻi distinct population segment of band-rumped storm-petrel (*Oceanodroma castro*),
- Federally listed flowering plants, ferns, and allies, ʻalani (*Melicope zahlbruckneri*), hau kuahiwi (*Cyrtandra nanawaleensis* and *Hibiscadelphus giffardianus*), and M*icrolepia stirgosa var. mauien.*

The FWS reply stated their response has been prepared under the authority of, and in accordance with, Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.) as amended (ESA).

8.2.7. Environmental Justice Executive Order 12898

Executive Order 12898, Environmental Justice (full title Federal Actions to Address Environmental Justice to Minority and Low Income Populations), was signed on February 11, 1994. The intent of Executive Order 12898 is to avoid disproportionately high adverse human health or environmental effects of projects on minority and low income populations. Executive Order 12898 also requires federal agencies ensure that minority and low-income communities have adequate access to public information related to health and the environment.

Despite the relatively high proportions of minority, low-income, and children residents in Hilo compared to the County, the construction of the Hilo WWTP improvements would not result in disproportionately high and adverse human health or environmental effects on these sensitive populations. As discussed in Section 2.3.1 and Section 3.14.2, the location and the design of the proposed facilities would minimize odor and air quality impacts.

8.2.8. Farmland Protection Policy Act (7 U.S.C. § 4201)

The Agriculture and Food Act was passed in 1981 and contained the Farmland Protection Policy Act (FPPA) (7 U.S.C. § 4201). The stated purposes of the FPPA are to: 1) minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses; and 2) assure that federal programs are administered in a manner that, to the extent practicable, will be compatible with state, unit of local government, and private programs and policies to protect farmland. “Farmland” subject to FPPA requirements does not have to be currently used for cropland.

The FPPA is administered by the U.S. Department of Agriculture (USDA), National Resources Conservation Service (NRCS). “Farmland”, as used in the FPPA, includes prime farmland, unique farmland, and land of statewide or local importance, as defined by the State of Hawai‘i Department of Agriculture.

The Detailed Land Classification – Island of Hawai‘i published by the University of Hawai‘i Land Study Bureau (LSB) evaluates the quality or productive capacity of certain lands on the island for selected crops and overall suitability in agricultural use. A five-class productivity rating system was established with “A” representing the class of highest productivity and “E” the lowest. The North Kona SPS site and surrounding area are rated as “E”. Under this system, the Hilo WWTP site is categorized as class “E” agricultural productivity,

In 1975, the US Department of Agriculture Soil Conservation Service (now Natural Resources Conservation Service) initiated a nationwide inventory of important farmlands. When completed, the inventory included three categories “prime”, “unique”, and “other farmlands of state-wide and local importance”. This classification was later adopted by the State of Hawai‘i Department of Agriculture under the title “Agricultural Lands of Importance to the State of Hawai‘i (ALISH).

According to the ALISH system, the North Kona SPS are surrounding areas are “Unclassified”.

According to the ALISH system map for the Island of Hawai‘i, the project area is classified as Other Lands defined as land other than Prime or Unique Agricultural Land that is also of statewide or local importance to agricultural use.

Based on these findings related to agricultural lands, the WWTP Rehabilitation and Replacement Project will not adversely affect agricultural lands in this area .

8.2.9. Fish and Wildlife Coordination Act (16 U.S.C § 661)

The Fish and Wildlife Coordination Act (16 U.S.C § 661), enacted on March 10, 1934, was amended on August 12, 1958. The purpose of the Act is to recognize the vital contribution of wildlife resources to the Nation, the increasing public interest and significance, and to provide that wildlife conservation shall receive equal consideration and be coordinated with other features of water-resource development programs through the effectual and harmonious planning, development, maintenance, and coordination of wildlife conservation. The Act defines wildlife and wildlife resources as birds, fishes, mammals and all other classes of wild animals, and all types of aquatic and land vegetation upon which wildlife is dependent (16 U.S.C. § 666b).

The Secretary of the Interior is authorized (1) to provide assistance to, and cooperate with, federal, state, and public or private agencies and organizations in the development, protection, rearing, and stocking of all species of wildlife, and their habitat; in controlling losses of the from disease or other causes; in minimizing damages from overabundant species; and in providing public shooting and fishing areas, including easements across public lands; (2) to make surveys and investigations of the wildlife of the public domain, including lands and waters acquired or controlled by any agency; and (3) to accept donations of land and contributions of funds in furtherance of the purposes of the Act.

Specifically, the Act states that “whenever the waters of any stream or other body of water are proposed or authorized to be impounded, diverted, the channel deepened, or the stream or other body of water otherwise controlled or modified for any purpose whatever, including navigation and drainage, by any department or agency of the United States, or by any public or private agency under Federal permit or license, such department or agency first shall consult with the United States Fish and Wildlife Service” (16 U.S.C. § 662(a)). The consultation may result in a report of recommendations by FWS that should be adopted to prevent the loss of or damage to wildlife resources. The provisions of the Act do not apply to impoundments of water less than 10 acres.

The Hilo WWTP will not contain lagoons or other open water areas which could attract wildlife and therefore a Fish and Wildlife Coordination Act review and/or consultation pursuant to 16 U.S.C. § 662 is not required.

8.2.10. Floodplain Management (Executive Order 11988, as amended by Executive Orders 1248 and 13690)

Executive Order 11988, Floodplain Management, dated May 24, 1977 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

In accomplishing this objective, "each agency shall provide leadership and shall take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare,

and to restore and preserve the natural and beneficial values served by floodplains in carrying out its responsibilities."

According to the Flood Insurance Rate Map (FIRM) Panel Number 1551660910F, (effective 9/29/2017) prepared by the Federal Emergency Management Agency (FEMA), the Hilo WWTP project site along with much of the surrounding area is designated as "area of minimal flood hazard."

8.2.11. Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801)

The 1996 Sustainable Fishery Act amendments to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. §1801) and subsequent Essential Fish Habitat (EFH) Regulatory Guidelines (NOAA, 2002) describe provisions to identify and protect habitats of federally managed marine and anadromous fish species. Under the various provisions, federal agencies that fund, permit, or undertake activities that may adversely affect EFH are required to consult with the NMFS.

Congress defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity." EFH is further defined by the existing regulations (MSFCMA, 1996; NOAA, 2002). "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle.

The Hilo WWTP is located about 1.29 miles (6,800 feet) from the shoreline and, as such, the facility does not include improvements that will adversely impact EFH.

8.2.12. Marine Mammal Protection Act (MMPA) (16 U.S.C. §§ 703 *et seq.*),

The Marine Mammal Protection Act (MMPA) (16 U.S.C. §§ 703 *et seq.*), protects all marine mammals. The MMPA includes a general moratorium on the taking and importing of marine mammals, and prohibits, with certain exceptions, the "take" of marine mammals in U.S. waters and by U.S. citizens on the high seas, and the importation of marine mammals and marine mammal products into the U.S. Jurisdiction for MMPA is shared by the FWS and NMFS. The FWS Branch of Permits is responsible for issuing take permits when exceptions are made to MMPA. Under the exception for incidental taking, the FWS or the NMFS must find that the total taking over the five-year period will have a "negligible impact" and will not adversely affect the availability of the marine mammal species or stock for subsistence use by natives.

The Hilo WWTP is located about 1.19 miles (6,300 feet) from the shoreline and, as such, will not adversely impact marine mammal communities and will not encourage any "take" of marine mammals.

8.2.13. Migratory Bird Treaty Act (16 U.S.C. §703)

The Migratory Bird Treaty Act (MBTA) and Executive Order 13186 (Responsibilities of Federal Agencies to Protect Migratory Birds) provide for the protection of migratory birds. The MBTA of 1918, as amended (16 U.S.C. §§ 703-712) makes it unlawful to, among other things, pursue,

hunt, take, capture, kill, transport or import any species listed under the Act. The Act implements conventions between the U.S., Great Britain, Mexico, Japan, and the former Soviet Union.

Executive Order 13186 was issued to assist federal agencies with their efforts to comply with the MBTA. It should be noted that the Executive Order does not constitute any legal authorization that in any way supersedes the requirements outlined in the MBTA. The Executive Order directs federal agencies undertaking actions that have or are likely to have a measurable adverse impact on migratory bird populations to develop and implement a Memorandum of Agreement with the FWS addressing the conservation of these populations.

The avian survey found a total of 11 species, representing eight separate families, were recorded during the three surveys. All the avian species recorded are alien to the Hawaiian Islands. No native species were detected nor expected given the habitats present within the developed area Hilo WWTP project site and the immediately adjacent area.

The avian survey found a total of 11 species, representing eight separate families, were recorded during the three surveys. All the avian species recorded are alien to the Hawaiian Islands. No native species were detected nor expected given the habitats present within the developed area Hilo WWTP project site and the immediately adjacent area.

Additionally, on February 17, 2023, the DOH initiated informal consultation with the U.S. Fish and Wildlife Service (FWS) regarding the Hilo WWTP project.Further, the DOH requested a list of threatened and endangered plant and animal species and critical habitats within the project site and/or action area. On May 2, 2023, the FWS replied to the DOH and provided species the Hilo WTTP improvements may affect, but not likely to adversely affect:

- Ōpeʻapeʻa or Hawaiian hoary bat (Lasiurus cinereus semotus),
- Nēnē or Hawaiian goose (Branta sandvicensis),
- Hawaiian waterbirds, including koloa or Hawaiian duck (Anas wyvilliana), aeʻo or Hawaiian stilt (Himantopus mexicanus knudseni), and ʻalae keʻokeʻo or Hawaiian coot (Fulica americana alai),
- Hawaiian seabirds, including the ʻuaʻu or Hawaiian petrel (Pterodroma sandwichensis), ʻaʻo or Newell's Townsend's shearwater (Puffinus auricularis newelli), and the ʻakēʻakē or Hawaiʻi distinct population segment of band-rumped storm-petrel (Oceanodroma castro),
- Federally listed flowering plants, ferns, and allies, ʻalani (Melicope zahlbruckneri), hau kuahiwi (Cyrtandra nanawaleensis and Hibiscadelphus giffardianus), and Microlepia stirgosa var. mauien.

8.2.14. National Historic Preservation Act (NHPA) of 1966 (54 U.S.C. § 300101)

The National Historic Preservation Act (NHPA) of 1966 (54 U.S.C. § 300101) requires a federal agency undertaking an action/project consider of the effect of the project on any historic property defined as a district, site, building, structure, or object that is included in or eligible for inclusion in the National Register of Historic Places.

Section 106 of the NHPA (54 U.S.C. § 306108) requires a federal agency having direct or indirect jurisdiction over a federal or federally assisted undertaking to take into account the effect of the undertaking on any historic property. An "undertaking" includes a "project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency" (54 U.S.C. § 300320). In addition, the Act requires the federal agency's preservation-related activities to be carried out in consultation with other federal, state, and local agencies, Indian tribes and Native Hawaiian organizations as set forth in 54 U.S.C § 306102.

On March 13, 2023, the DOH submitted the Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project report to the State Historic Preservation Division (SHPD) along with a letter requesting SHPD's concurrence with a project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l).

On August 8, 2023, the SHPD replied (Project No.: 2023PR00356 Doc. No.: 2308SN01 Archaeology), that the submittal indicates that ground disturbance will be within areas previously disturbed during initial construction of the WWTP in the early 1990s. SPHD indicated the proposed ground disturbance will include regrading of a drainage channel around a new anaerobic digester, fence clearing along the perimeter of WWTP site, clearing of vegetation for construction staging area, and ground preparation for new facility buildings.

The SHPD concluded, based on the information provided, the SHPD concurs with DEM's HRS 6E-8 project effect determination of "No historic properties affected" pursuant to HAR §13-275-7(a)(l) (See Appendix D).

Given the findings of the March 2023 Literature View and Field Inspection report and the findings that the absence of any surface archaeological features in the project area and the extent of prior ground disturbance, further archaeological study is not recommended for the Hilo Wastewater WWTP Rehabilitation and Replacement Project. Further, based on the SHPD concurrence of the "no historic properties affected", there will be no adverse impact to historic resources from construction of the Proposed Action.

Notwithstanding the above findings, CoH-DEM and its contractors would be required to comply with all State and County rules and regulations regarding the preservation of archaeological and historic sites. The construction documents would include a provision that should historic sites such as walls, platforms, pavements and mounds, or remains such as artifacts, burials, concentrations of shell or charcoal or artifacts be inadvertently encountered during construction activities, work would cease immediately and the SHPD would be contacted, which would assess the significance of the find and recommend appropriate mitigation measures if necessary. The CoH-DEM would also consult with SHPD in compliance with State historic preservation review requirements to determine appropriate mitigation measures for the project.

8.2.15. Protection of Wetlands Executive Order 11990

Executive Order 11990, Protection of Wetlands, dated 1977 requires federal agencies to avoid, preserve, or mitigate effects of new construction projects on lands which have been designated wetlands. Executive Order 11990 states in order to avoid to the extent possible the long- and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative, it is hereby ordered as follows: Section 1. (a) Each agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to

preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities for (1) acquiring, managing, and disposing of federal lands and facilities; and (2) providing federally undertaken, financed, or assisted construction and improvements; and (3) conducting federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

The biological resources field survey stated no wetlands were observed on the site.

8.2.16. Rivers and Harbors Appropriation Act (33 U.S.C. §403)

Originally enacted on March 3, 1899, the Rivers and Harbors Appropriation Act of 1899 affects navigable waters of the U.S. Section 10 of the Act states the creation of any obstruction not affirmatively authorized by Congress, to the navigable capacity of any of the waters of the United States is prohibited; and it shall not be lawful to build or commence the building of any wharf, pier, dolphin, boom, weir, breakwater, bulkhead, jetty, or other structures in any port, roadstead, haven, harbor, canal, navigable river, or other water of the United States, outside established harbor lines, or where no harbor lines have been established, except on plans recommended by the Chief of Engineers and authorized by the Secretary of the Army; and it shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or enclosure within the limits of any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army prior to beginning the same (33 U.S.C. § 403).

The Hilo WWTP is located about 1.19 miles (6,300 feet) from the shoreline. The Hilo WWTP project will not directly affect any streams or gulches. Based on this, the Hilo WWTP project will not affect navigable waters.

8.2.17. Safe Drinking Water Act (42 U.S.C. § 300f)

The Safe Drinking Water Act (SDWA) of 1974 (42 U.S.C. § 300f) was established to protect the quality of all waters actually or potentially designed for drinking use from both underground and aboveground sources. The SDWA authorizes EPA to establish minimum standards to protect potable water with which all owners or operators of public water systems must comply; to oversee the agencies which can be approved to implement these rules on EPA's behalf, such as state governments; and to encourage attainment of secondary standards (nuisance-related). Section 1424(e) of the SDWA of 1974 (Public Law 93-523, 42 U.S.C. 300 et. seq also established the Sole Source Aquifer program which states that no commitment for federal financial assistance (through a grant, contract, loan guarantee, or otherwise) may be entered into for any project which the EPA Administrator determines may contaminate such aquifer through a recharge zone so as to create a significant hazard to public health.

The Hilo WWTP project does not establish a drinking water system, and no Sole Source Aquifers are present on the Island of Hawai‘i. As a result, SDWA does not apply to the Hilo WWTP project.

8.2.18. Wild and Scenic Rivers Act, (16 U.S.C. §§ 1271-1287

The Wild and Scenic Rivers Act, (16 U.S.C. §§ 1271-1287), declares that certain selected rivers with their immediate environments, which possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historical, cultural, or other similar values, shall be preserved in their free-flowing condition for the enjoyment of present and future generations.

The State of Hawai'i has no designated wild and scenic rivers. The Wild and Scenic Rivers Act is not applicable to this project.

8.2.19. Clean Water Act (33 U.S.C. § 1251 et seq.)

The Clean Water Act established the basis for regulating discharges of pollutants into waters of the U.S. Enacted in 1948, it was originally called the Federal Water Pollution Control Act but became known as the Clean Water Act with the amendments of 1972. Section 404 of the Clean Water Act regulates the discharge of dredged or fill material into waters of the U.S. and adjacent wetlands from development, water resource projects, mining or other infrastructure projects. Activities are regulated through a permit process that is administered under the responsibility of the U.S. Army Corps of Engineers. Permits may be issued as either Individual Permits for projects with potentially significant impacts or general permits for projects with only minimal adverse effects.

The 2023 biological field survey of the Hilo WWTP showed no wetlands vegetation or soils on the project site. Since no wetland resources are present nor impacts to wetlands anticipated due to the nature and design of the Proposed Action, a Clean Water Act Section 404 permit is not required.

In addition to the above, the Clean Water Act was amended by the Federal Water Quality Act of 1987 which established provisions for a Clean Water State Revolving Fund (33 U.S.C. § 1383), a financial assistance program for water infrastructure projects. The program capitalizes on a partnership between EPA and states to provide loans to eligible recipients through state programs that act as environmental infrastructure banks providing low-interest loans. As stated in Section 2.4, the Hilo WWTP Rehabilitation and Replacement Project is being funded in part by the State of Hawai'i DOH Clean Water State Revolving Fund.

CHAPTER 9: REFERENCES

9. REFERENCES

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APPENDIX A
Summary of Natural Resource Surveys
AECOS, Inc

Summary of three natural resources surveys conducted in support of Hilo Wastewater Treatment Plant improvements Hilo, Island of Hawai‘i

AECOS Inc.
45-939 Kamehameha Highway
Suite 104
Kāneʻohe, Hawaiʻi 96744

March 7, 2023

Summary report of three natural resources surveys conducted in support of Hilo Wastewater Treatment Plant improvements Hilo, Island of Hawai‘i

March 7, 2023 **DRAFT** *AECOS* No. 1711D

Reginald E. David
AECOS Inc.
45-939 Kamehameha Highway, Suite 104
Kāneʻohe, Hawaiʻi 96744
Phone: (808) 234-7770 cell (808) 937-0124 Email: reggie@aecos.com

Introduction

The Hilo Wastewater Treatment Plant (WWTP) was constructed in the early 1990s, over 39 years ago at a site within Tax Map Key (TMK): 2-1-013:002 (Figure 1). The digester and headworks are crucial parts of the treatment process and must always remain in operation. Given their age, the Hawai‘i County, Department of Environmental Management has determined replacement of these facilities is the most feasible alternative over making repairs. The replacement digester and headworks and related improvements will be sited adjacent to the existing facilities within an area previously cleared and graded during construction of the original of the WWTP.

AECOS Inc., under contract to Wilson Okamoto Corporation, has conducted a total of three biological surveys of the WWTP site, one covering Phase 1 improvements, a second covering the Phase 2 improvements, and the third for “future” improvements (*AECOS*, 2022a, 2022b, 2023).

Site Description

The Hilo WWTP is located southeast of the Hilo International Airport (Fig. 1) and surrounded by a chain link fence. The site was completely graded in 2018 or 2019 prior to the construction of the facilities; the ground within the currently fenced plant is either asphalt pavement or covered in crushed rock (Figures 3, 4 and 5). There is Very little vegetation grows within the currently fenced WWTP; what is present is

controlled by regular maintenance activities: weed whacking and application of herbicides. The area being proposed for a future warehouse building (Location 22, *AECOS*, 2023) is currently a maintained lawn with a row of coconut trees (*Cocos nufiera*). Areas between the existing perimeter fence and the newly proposed perimeter fence is vegetated along the east, west, and south of the WWTP with a mix of maintained (mowed) lawns and landscaping along the roads and facilities with a well-established alien forest along the boundaries of the project area. The northern section of the project area is dominated by an alien forest up to 40 ft tall (*AECOS*, 2022b).

Figure 1. Hilo WWTP location in relation to the Hilo International Airport.

Project Description

Improvements to the WWTP facility will be phased and include improvements within the plant proper and outside of the existing perimeter fence. Individual components proposed are illustrated in the following schematic figure (Figure 2).

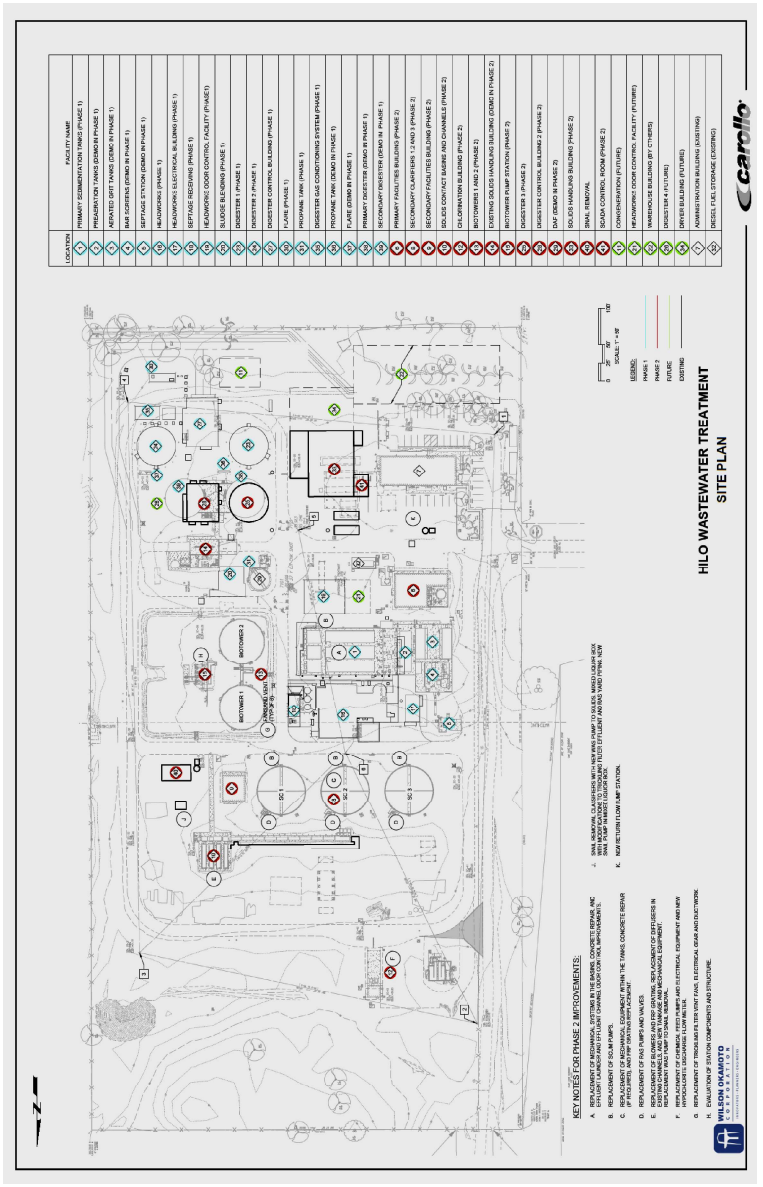

Figure 2 – Hilo WWTP schematic view showing locations of the proposed three phases of improvements

Methods

Botanical Survey

AECOS, Inc. biologists surveyed the sites for each of the three phases on, July 18, 2022, October 7, 2022, and February 15, 2023. Plant species were identified as they were encountered around the proposed site improvements. Species names follow Manual of the Flowering Plants of Hawai'i (Wagner, Herbst, & Sohmer, 1990; Wagner & Herbst, 1999) for native and naturalized flowering plants, *Hawai'i's Ferns and Fern Allies* (Palmer, 2003) and *Taxonomic and Nomenclatural Updates to the Fern and Lycophyte Flora of the Hawaiian Islands* (Ranker et al, 2019) for ferns, and *A Tropical Garden Flora* (Staples & Herbst, 2005) for ornamental plants. More recent name changes for naturalized plant species follow Imada (2019).

Terrestrial Vertebrates Survey

Avian Survey

Reginald David surveyed the three phase sites on July 18, 2022, October 7, 2022, and February 15, 2023. Birds were identified by visual observations aided by Leica 8 X 42 binoculars, and by listening for vocalizations. Avian species abundance was estimated based on the data gathered at 8-minute time dependent point count stations. The avian phylogenetic order and nomenclature used in this report follows the AOU Check-List of North and Middle American Birds 2021, and the 63rd supplement to the checklist (Chesser et al., 2021, 2022).

Mammalian Survey

A list was made of mammals encountered during the survey. Indicators of mammalian presence, such as tracks, scat, and other sign were noted. Mammalian phylogenetic order and nomenclature follow *Mammal Species of the World* (Wilson and Reeder, 2005).

Results

Vegetation

The vegetation within the currently fenced Hilo WWTP is entirely short stature herbaceous species adapted to growing in minimal soil and conditions or regular disturbance (ruderal habitat). Vegetation on the site for the proposed warehouse

building (Location 22; *AECOS*, 2023) is a manicured lawn with coconut trees planted on it. Areas between the existing perimeter fence and the newly proposed perimeter fence (*AECOS*, 2022b) is vegetated along the east, west, and south of the WWTP with a mix of maintained (mowed) lawns and landscaping plants along the roads and facilities with a well-established alien forest along the boundaries of the project area. The northern section of the project area is dominated by an alien forest up to 40 ft tall (*AECOS*, 2022b).

Flora

Overall, the vegetation is dominated by introduced (non-native) species a total of 98 plant species were documented, with 12 being native (indigenous or endemic), and 5 Polynesian introductions. The individual survey reports present the species documented at each site (*AECOS*, 2022a, 2022b, 2023).

Avian Fauna

A total of 11 species, representing eight separate families, were recorded during the three surveys. All the avian species recorded are alien to the Hawaiian Islands. The individual survey reports present the avian species documented at each site (*AECOS*, 2022a, 2022b, 2023).

Mammalian Fauna

Two terrestrial mammalian species were recorded during the three surveys. Both species detected are alien to the Hawaiian Islands. The individual survey reports list the mammals documented at each site (*AECOS*, 2022a, 2022b, 2023).

Discussion and Recommendations

Recommendations are partly based on U.S. Fish and Wildlife Service, Animal Avoidance and Minimization Measures (USFWS-PIFWO, 2022). Implementation of the recommendations (provided below as bulleted items) by the Project contractor will minimize impacts to listed species to the maximum extent practicable.

Floral Resources

The flora within the three sites surveys is unremarkable. No species of any special conservation concern are present. No endangered or threatened species were found (HDLNR, 1998; USFWS, nd-a). Nine native (indigenous) plant species are

present, but none is considered rare in the Hilo area nor across the Hawaiian Islands. Due to human and wild animal activity, the site is dominated by common, naturalized plant species, and the site is maintained with mowing, weed whacking and application of herbicides.

Avian Resources

All avian species detected are alien to the Hawaiian Islands. No native species were detected nor expected given the habitats present within the Hilo WWTP facility, or immediately adjacent to it.

Seabirds

It is possible that Hawaiian Petrel (*Puffinus sandwichesis*), Band-rumped Storm-Petrel (*Hydrobates castro*), and Newell's Shearwater (*Puffinus newelli*) over-fly the Project area between April and the middle of December each year in small numbers. The primary cause of mortality in Hawaiian Petrels and Newell's Shearwaters in Hawai'i is thought to be predation by alien mammalian species at the nesting colonies (USFWS, 1983; Simons and Hodges, 1998; Ainley et al., 2001). Collision with man-made structures is considered the second-most significant cause of mortality of these listed seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with man-made structures and, if not killed outright, become easy targets of opportunity for feral mammals (Hadley, 1961; Telfer, 1979; Sincock, 1981; Reed et al., 1985; Telfer et al., 1987; Cooper and Day, 1998; Podolsky et al., 1998; Ainley et al., 2001; Hue et al., 2001; Day et al., 2003). No suitable nesting habitat exists within or close to the Project area for any of these three seabird species.

The principal potential impact that the Project poses to protected seabirds is an increased threat that birds will be downed after becoming disoriented by lights associated with the construction if undertaken during the nesting season and if it is deemed expedient or necessary to conduct night-time construction activities. As well, following build-out, security lighting operated during the seabird nesting season can pose a hazard.

- If night-time construction activity or equipment maintenance is proposed during the construction phases of the project, all associated lights should be shielded, and when large flood/work lights are used, they should be placed on poles that are high enough to allow the lights to be pointed directly at the ground (Reed et al., 1985; Teller et al., 1987). Deleterious impacts to transiting seabirds can be avoided if construction occurs during daylight hours and all outdoor lighting installed is fully "dark sky compliant" (HDLNR-DOFAW, 2016). DLNR recommends avoiding construction-related night-time lighting between September 15 and December 15 (DLNR, 2016).

Switch-over from existing facilities to new ones is usually done during the lowest flow periods, sometime after midnight. That switch-over will require construction lighting on at least one night. All construction lighting required to safely make the switch-over should be pointed so that the luminaire is parallel to the ground and that the lights are sufficiently shielded to ensure that no light escapes in an upward direction, or off the site.

Hawaiian Hawk

Hawaiian Hawk (*Buteo solitarius*) was not recorded during our surveys. This state listed species is regularly seen in the greater Hilo area (David, 2023). It is not expected that the proposed improvements will result in any deleterious impacts to this endemic species.

Mammalian Resources

The findings of the mammalian survey are consistent with the location of the property and habitats present on that property. Although no rodents were recorded it is likely that some of the four established Muridae found on Hawai'i Island—roof rat (*Rattus rattus*), brown rat (*Rattus norvegicus*), Polynesian rat (*Rattus exulans hawaiiensis*), and European house mouse (*Mus musculus domesticus*)—use resources within the general Project area on a seasonal basis. These introduced rodents are deleterious to native ecosystems and native faunal species.

With the exception of the Hawaiian hoary bat , no mammalian species currently protected or proposed for protection under either the federal or State of Hawai'i endangered species programs were detected or expected during this survey (DLNR, 2015; USFWS, nd-a).

Hawaiian hoary bat

It is probable that the Hawaiian hoary bat or *'ōpe'ape'a* (*Lasiurus cinereus semotus*) overflies the Project area on a seasonal basis as they are regularly recorded in the greater Hilo area (David, 2023). The removal of trees can temporarily displace individual bats using those trees for roosting. As bats use multiple roosts within their home territories, the potential disturbance resulting from the removal of vegetation is likely to be minimal. However, during the

pupping season, females carrying their pups may be less able to vacate a roost site if the tree is felled. Further, adult female bats sometimes leave their pups in the roost tree while they forage. Very small pups may be unable to flee a tree that is being felled.

- Potential adverse impacts from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 m (15 ft) between June 1 and September 15, the period in which bats may have pups.

Other Resources of Potential Concern

Critical Habitat

No federally delineated Critical Habitat for any species occurs within the Project area (USFWS, nd-b). There is no equivalent designation under State of Hawai'i endangered species statutes.

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A natural resources assessment for Hilo wastewater treatment plant improvements Hilo, Island of Hawai'i

AECOS Inc.
45-939 Kamehameha Highway
Suite 104
Kāne'ohe, Hawai'i 96744

July 19, 2022

A natural resources assessment for
Hilo wastewater treatment plant improvements
Hilo, Island of Hawai'i

July 19, 2022 **DRAFT** *AECOS* No. 1711

Reginald E. David, David Miranda, and Eric Guinther
AECOS Inc.
45-939 Kamehameha Highway, Suite 104
Kāne'ohe, Hawai'i 96744
Phone: (808) 234-7770 Fax: (808) 234-7775 Email: guinther@aecos.com

Introduction

The Hilo Wastewater Treatment Plant (WWTP) was constructed in the early 1990s, over 39 years ago at a site within Tax Map Key: 2-1-013:002 (por). The digester and headworks are critical parts of the treatment process and must always remain in operation. Given their age, the Department of Environmental Management has determined replacement of these facilities is the most feasible alternative. The replacement digester and headworks and related improvements will be sited adjacent to the existing facilities within an area previously cleared and graded during construction of the original of the WWTP.

AECOS Inc. was contracted by Wilson Okamoto Corporation to conduct terrestrial natural resources surveys of the project site[1].

Site Description

The Hilo WWTP is located southeast of the Hilo International Airport and surrounded by a chain link fence (Figure 1). The site was completely graded in 2018 or 2019 prior to the construction of the existing facilities; the ground is either asphalt pavement or covered in crushed rock (Cover image, Figures 2 and 3). There is very little vegetation within the areas of proposed new structures, and what little is present is controlled by weed whacking and application of herbicides on a regular basis (Cover image, Figures 2 and 3).

[1] This report is intended to become part of the public record and incorporated into an EA for the subject project.

Figure 1. Hilo WWTP location in comparison to the Hilo International Airport

Methods

Botanical Survey

Reginald David surveyed the Project site on July 18, 2022. Plant species were identified as they were encountered around the proposed site improvements. Plants that could not be identified in the field were photographed and identified by E. Guinther. Included for consideration were plants observed at the very start of the survey reported in *AECOS* (2022) and identified by D. Miranda from the Hilo WWTP grounds.

Species names follow *Manual of the Flowering Plants of Hawai'i* (Wagner, Herbst, & Sohmer, 1990; Wagner & Herbst, 1999) for native and naturalized flowering plants and *Hawai'i's Ferns and Fern Allies* (Palmer, 2003) for ferns. More recent name changes for naturalized plant species follow Imada (2019).

Figure 2 – Hilo WWTP aerial view showing locations of proposed new buildings and structures in white.

Terrestrial Vertebrates Survey

Avian Survey

A bird survey was conducted by Reginald David in the morning hours of July 18, 2022. Birds were identified by visual observations aided by Leica 8 X 42 binoculars, and by listening for vocalizations. Avian species abundance was estimated at two count-stations were sited within the existing plant one on the site of the new Digestor Control Building (Cover image) and the second on the site of the new Headworks (Figure 3). A single eight-minute avian point-count was made at each of the count-stations. Weather conditions were overcast with occasional light showers, and winds between 1 and 5 kilometers per hour. The avian phylogenetic order and nomenclature used in this report follows the AOU Check-List of North and Middle American Birds 2021 (Chesser et al., 2021).

Mammalian Survey

A list was made of mammals encountered during the survey. Indicators of mammalian presence, such as tracks, scat, and other sign were noted. Mammalian phylogenetic order and nomenclature follow *Mammal Species of the World* (Wilson and Reeder, 2005).

Results

Vegetation

The vegetation on the Hilo WWTP is entirely short stature herbaceous species adapted to growing in minimal soil and conditions or regular disturbance (ruderal habitat).

Flora

Because all of the survey area and the ground surrounding the WWTP is highly disturbed from a natural environment perspective, there is no value in considering the abundance of the species growing there. Abundance is largely determined by the on-going disturbances of weed-wacking and herbicide applications.

The number of plants listed in Table 1 is only 21. Undoubtedly, other weedy species occur on the grounds. For example, at least one grass was observed that could not be identified owing to an absence of a flowering structure. It is evident, however, that the majority of the species recorded are non-native, naturalized

Figure 3. Site of proposed headworks and an avian count station.

Table 1. Plant species observed at and in the vicinity of the Hilo WWTP.

Species listed by family	*Common name*	*Status*
Pteridophytes		
Ferns and fern allies		
NEPHROLEPIDACEAE		
Nephrolepis exaltata hawaiiensis W. H. Wagner	*ni'ani'au*	**End**
Angiosperms		
Monocotyledons		
COMMELINACEAE		
Commelina diffusa N. L. Burm.	honohono	**Pol**
CYPERACEAE		
Cyperus polystachyos Rottb.	---	**Ind**
Kyllinga brevifolia Rottb.	*kili'o'opu*	Nat
POACEAE		
Andropogon virginicus L.	broomsedge	Nat

Table 1 (continued).

Species listed by family	*Common name*	*Status*
Axonopus compressus (Sw.) P. Beauv.	carpetgrass	Nat
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	Nat
Megathyrsus maximus (Jacq.) B.K. Simon & W.L. Jacobs	Guinea grass	Nat
Melinis repens (Willd.) Zizka	Natal redtop	Nat
Angiosperms		
Dicotyledons		
ASTERACEAE (COMPOSITAE)		
Ageratum conyzoides L.	*maile hohono*	Nat
Conyza canadensis (L.) Cronq.	horseweed	Nat
Crassocephalum crepidioides (Benth.) S. Moore	---	Nat
Emilia fosbergii Nicolson	*pualele*	Nat
EUPHORBIACEAE		
Euphorbia hirta L.	garden spurge	Nat
Euphorbia prostrata Aiton	prostrate spurge	Nat
FABACEAE		
Mimosa pudica L.	sensitive plant	Nat
LYTHRACEAE		
Cuphea carethagenesis (Jacq.) Macbr.	tarweed	Nat
POLYGALACEAE		
Polygala paniculata L.	bubblegum plant	Nat
RUBIACEAE		
Spermacoce assurgens Ruiz & Pav.	buttonweed	Nat
SCROPHULARIACEAE		
Lindernia crustacea (L.) F. v. Muell.	---	Nat
URTICACEAE		
Pilea microphylla (L.) Liebm..	artillery plant	Nat

Legend to Table 1

STATUS = distributional status for the Hawaiian Islands:
End = endemic; unique to the Hawaiian Islands
Ind = native to the Hawaiian Islands but also found native in other places.
Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
Pol = An early Polynesian introduction, introduced before 1778.

plants capable of surviving ruderal conditions. Two native species and one early Polynesian introduction are present. Included in the former are the fern, ni'ani'au (*Nephrolepis exaltata haweaiiensis*) and a sedge (*Cyperus polystachyos*). Both are widespread in the Hilo area. The Polynesian introduction is *honohono* (*Commelina difusa*), also a very common plant across the Islands in relatively wet areas.

Avian Fauna

A total of 48 individual birds of 11 species, representing eight separate families, was recorded during station counts (Table 2). All the avian species recorded are alien to the Hawaiian Islands.

Avian diversity and densities were in keeping with the location and vegetation present within the existing Hilo WWTP Three species Common Myna (*Acridotheres tristis*), House Sparrow (*Passer domesticus*), and Zebra Dove (*Geopelia striata*)—accounted for 58% of all birds recorded during station counts. The most frequently recorded species was Common Myna, accounting for 27% of the total number of individual birds recorded.

Table 2. Avian species detected Hilo WWTP Improvements sites, Hilo, July, 2022

Common Name	Order Family Species	Status	RA
	COLUMBIFORMES		
	COLUMBIDAE - Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	1.00
Zebra Dove	*Geopelia striata*	A	3.50
	PASSERIFORMES		
	CETTIIDAE - Cettia Warblers & Allies		
Japanese Bush-Warbler	*Horomis diphone*	A	0.50
	ZOSTEROPIDAE - White-eyes		
Warbling White-eye	*Zosterops japonicus*	A	2.50
	STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*	A	6.50
	PASSERIDAE - Old World Sparrows		
House Sparrow	*Passer domesticus*	A	4.00
	Carduline Finches & Allies		

Common Name	Order Family Species	Status	RA
	Carduelinae - Carduline Finches and Hawaiian Honeycreepers		
House Finch	*Haemorhous mexicanus*	A	1.00
Yellow-fronted Canary	*Ceithagra mozambica*	A	1.00
	CARDINALIDAE - Cardinals & Allies		
Northern Cardinal	*Cardinalis cardinalis*	A	0.50
	THRAUPIDAE - Tanagers		
Yellow-billed Cardinal	*Paroaria capitata*	A	2.00
Saffron Finch	*Sicalis flaveola*	A	1.50

Legend to Table 2

Status:
A = Naturalized, non-native species (introduced).
RA : Relative Abundance ~ species count / number of point-count stations (n=9).

Mammalian Fauna

Two terrestrial mammalian species were detected during this survey. We saw small Asian mongoose (*Herpestes javanicus*) and a number of pigs (*Sus scrofa*) were seen within the Hilo WWTP.

Discussion and Recommendations

Recommendations are partly based on U.S. Fish and Wildlife Service, Animal Avoidance and Minimization Measures (USFWS-PIFWO, 2022). Implementation of the recommendations (provided below as bulleted items) by the Project contractor will minimize impacts to listed species to the maximum extent practicable.

Floral Resources

The vegetation within the existing facility is unremarkable. No species of significance are present. No endangered or threatened species were found (HDLNR, 1998; USFWS, nd-a). A few native plant species are present, but none is considered rare in the Hilo area or the Hawaiian Islands. Due to human and wild animal activity, the site is dominated by common, naturalized plant species.

Avian Resources

All avian species detected are alien to the Hawaiian Islands. No native species were detected nor expected given the habitats present within the Hilo WWTP facility, and its location close to Hilo.

Seabirds

It is possible that the endangered Hawaiian Petrel (*Puffinus sandwichesis*), Band-rumped Storm-Petrel (*Hydrobates castro*), and the threatened Newell's Shearwater (*Puffinus newelli*) over-fly the Project area between April and the middle of December each year in small numbers. The primary cause of mortality in Hawaiian Petrels and Newell's Shearwaters in Hawai'i is thought to be predation by alien mammalian species at the nesting colonies (USFWS, 1983; Simons and Hodges, 1998; Ainley et al., 2001). Collision with man-made structures is considered the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with man-made structures and, if not killed outright, become easy targets of opportunity for feral mammals (Hadley, 1961; Telfer, 1979; Sincock, 1981; Reed et al., 1985; Telfer et al., 1987; Cooper and Day, 1998; Podolsky et al., 1998; Ainley et al., 2001; Hue et al., 2001; Day et al., 2003). No suitable nesting habitat exists within or close to the Project area for any of these three seabird species.

The principal potential impact that the Project poses to protected seabirds is an increased threat that birds will be downed after becoming disoriented by lights associated with the construction if during the nesting season. The two ways outdoor lighting can pose a threat to nocturnally flying seabirds is if: 1) during construction it is deemed expedient or necessary to conduct night-time construction activities; or, 2) following build-out, security lighting is operated during the seabird nesting season.

- If night-time construction activity or equipment maintenance is proposed during the construction phases of the project, all associated lights should be shielded, and when large flood/work lights are used, they should be placed on poles that are high enough to allow the lights to be pointed directly at the ground (Reed et al., 1985; Teller et al., 1987). Deleterious impacts to transiting seabirds can be avoided if construction occurs during daylight hours and all outdoor lighting installed is fully "dark sky compliant" (HDLNR-DOFAW, 2016). DLNR recommends avoiding construction-related night-time lighting between September 15 and December 15 (DLNR, 2016).

When the switch over from the existing facilities to the new ones occur, that is traditionally done during the lowest peak flow periods, ergo sometime after midnight. That switch over will require construction lighting at night on at least one night. All construction lighting required to safely make the switch over should be pointed so that the luminaire is parallel to the ground and that the lights are sufficiently shielded to ensure that no light escapes in an upward direction, or off the site.

Hawaiian Hawk

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Other Resources of Potential Concern

Critical Habitat

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A natural resources assessment for the phase 2 improvements, Hilo wastewater treatment plant Hilo, Island of Hawai'i

AECOS Inc.
45-939 Kamehameha Highway
Suite 104
Kāne'ohe, Hawai'i 96744

October 26, 2022

A natural resources assessment for the phase 2 improvements, Hilo wastewater treatment plant, Hilo, Island of Hawai‘i

October 26, 2022 **DRAFT** *AECOS* No. 1711B

Reginald E. David and Maya LeGrande
AECOS Inc.
45-939 Kamehameha Highway Suite 104
Kāne'ohe, Hawai'i 96744
Phone: (808) 234-7770 Fax: (808) 234-7775 Email: guinther@aecos.com

Introduction

The County of Hawaii, Department of Wastewater Management (DWM) is proposing to construct various improvements to the Hilo Wastewater Treatment Plant (WWTP), originally constructed in 1994 and fully operational since then. The Hilo WTTP occupies an area of about 9.27 ac (3.75 ha) within TMK: 1-2-013:002, a 2,407.756-ac (975.4-ha) parcel owned by the State of Hawai'i. The WWTP is located within a relatively undeveloped area of South Hilo on Kekuanaoa Place about 5,000 ft (1520 m) southeast of Hilo International Airport, Runway 26 (Figure 1).

The WWTP headworks and digester are critical parts of the treatment process and must remain in operation at all times for the WWTP to maintain functionality. Given the age and present condition of the existing headworks and digester facilities, DWM has determined that replacement of these facilities is a more feasible alternative to making incremental repairs on the old equipment. The replacement headworks and digester will be sited adjacent to the existing facilities within an area previously cleared and graded during construction of the WWTP in 1994. Once the new headworks and digester are operational, the older facilities will be decommissioned.

In association with the replacement of the headworks and digester, DWM will extend the WWTP site fence beyond the existing fenced area (Figure 2) to provide additional lay-down/staging areas for the construction effort and to facilitate future WWTP operations. This new area between the existing fence and the new

fence line is the subject of the current survey (Figure 2). A biological survey was conducted for the WWTP new headworks and digester facilities on July 18, 2022 (*AECOS*, 2022).

Figure 1. Location of the Hilo WWTP east of Hilo and the Hilo International Airport.

Methods

Botanical Survey

Maya LeGrande surveyed the project area on October 7, 2022. Plant species were identified as they were encountered during a wandering or pedestrian transect of the survey area as indicated in Fig. 2. Notes were made on plant associations and distribution, disturbances, topography, substrate type, exposure, and drainage. Species names follow *Manual of the Flowering Plants of Hawai‘i* (Wagner, Herbst, & Sohmer, 1990; Wagner & Herbst, 1999) for native and naturalized flowering plants, *Hawai‘i's Ferns and Fern Allies* (Palmer, 2003) and *Taxonomic and Nomenclatural Updates to the Fern and Lycophyte Flora of the Hawaiian Islands* (Ranker et al, 2019) for ferns, and *A Tropical Garden Flora* (Staples & Herbst, 2005) for ornamental plants. More recent name changes for naturalized plant species follow Imada (2019).

Terrestrial Vertebrates Survey

Avian Survey

A survey of birds was conducted by Reginald David in the morning hours of October 7, 2022. Birds were identified by visual observations aided by Leica 8 X 42 binoculars, and by listening for vocalizations. Avian species abundance was estimated at four count-stations distributed more or less evenly around the perimeter of the WWTP. A single eight-minute avian point-count was made at each of the count-stations. Weather conditions were ideal, with no rain, unlimited visibility, and winds between 1 and 5 kilometers per hour. The avian phylogenetic order and nomenclature used in this report follows the AOU Check-List of North and Middle American Birds 2021 (Chesser et al., 2021, 2022).

Mammalian Survey

A list was made of mammals encountered during the survey. Indicators of mammalian presence, such as tracks, scat, and other sign were noted. Mammalian phylogenetic order and nomenclature follow *Mammal Species of the World* (Wilson and Reeder, 2005).

Results

Vegetation

The survey area consists of a rectangular survey area bordering the exisiting Hilo WWTP. The vegetation along the east, west, and south sides of the WWTP is a mix of maintained (mowed) lawns and landscape plantings along roads and facilities, with a bordering, well-established alien forest (Figure 3). The northern section of the survey area incorporates an alien forest of trees up to 40 ft (12 m) tall (Figure 4).

Flora

A listing of the plants identified in this survey is provided as Table 1. Overall, the vegetation is dominated by introduced (non-native) species. A total of 98 plant species were documented with 10 being native (10% indigenous or endemic) and four being early Polynesian introductions. Trees present here include: *Trema orientalis, Macaranga* spp., *Melochia umbellata, Falcataria moluccana* (albizia), *Heptapleurum actinophyllum, Alstonia macrophylla, Aleurites moluccana,* and *Psidium cattleyanum* (strawberry guava). A few native *Metrosideros polymorpha*

Figure 2. Survey area for this report is the border between the existing fence line (orange line) and the "Property Line" (red dashed line). Widths of border areas surveyed indicated in feet by white numerals. Modified from Wilson Okamoto Corp. drawing.

Figure 3. South corner and east boundary of the project area is dominated by maintained weedy groundcover and established alien forest to the East.

(*'ōhi'a lehua*) trees were observed scattered in the southern and northern sections of the survey area. *Pandanus tectorius* (*hala*) occurs occasionally as solitary trees within the dense, secondary forest. In open areas along roads and the forest edge, woody shrubs and grasses dominate the vegetation. Prominant here are: *Miconia crenata*, *Melostoma septemnervium*, *Lantana camara*, *Sphagneticola trilobata*, *Heterotis rotundifolia*, *Crotalaria* spp., *Axonopus compressus, Megathyrsus maximus*, and *Themeda villosa*. Ferns are abundant in all areas surveyed. These include the introduced *Nephrolepis brownii, Blechnum appendiculatum, Phlebodium aureum, Phymatosorus grossus,* and *Christella parasitica*. Native ferns and fern allies were observed most frequently as epiphytes on tree trunks and include *Crepidomanes minutum, Lepisorus thunbergianus,* and *Psilotum nudum*.

Figure 4. The southwestern corner of the project area dominated by grassy lawns around the parking area, alien forest along, and ornamental palm plantings.

Table 1. Plant species observed at the Hilo WWTP project area in October 2022.

Species listed by family	*Common name*	*Status*	*Abundance*
Pteridophytes ***Ferns and fern allies***			
BLECHNACEAE			
Blechnum appendiculatum Willd.	---	Nat	U
GLEICHENIACEAE			
Dicranopteris linearis (Burm. f.) Underw.	*uluhe*	**Ind**	U

Table 1 (continued).

Species listed by family	*Common name*	*Status*	*Abundance*
HYMENOPHYLLACEAE			
Crepidomanes minutum (Blume) K.Iwats.	---	**Ind**	U
NEPHROLEPIDACEAE			
Nephrolepis brownii (Desv.) Hovenkamp & Miyam.	---	Nat	C
POLYPODIACEAE			
Lepisorus thunbergianus (Kaulf.) Ching	*pākahakaha*	**Ind**	O
Phlebodium aureum (L.) J. Sm.	rabbit's-foot fern, *laua'e haole*	Nat	R
Phymatosorus grossus (Langsd. & Fisch.) Brownlie	*laua'e*	Nat	C
PSILOTACEAE			
Psilotum nudum (L.) P.Beauv.	*moa*	**Ind**	U
PTERIDACEAE			
Pityrogramma calomelanos (L.) Link	silver fern	Nat	R
THELYPTERIDACEAE			
Christella parasitica (L.) H. Lév.	---	Nat	C
Flowering Plants			
Monocots			
ARACEAE			
Epipremnum pinnatum cult. *aureum*	pothos	Nat	R
ARECACEAE			
Cocos nucifera L.	*niu*, coconut	**Pol**	O
Veitchia merrillii (Baccari) H.E. Moore	Manila palm	Orn	O
ASPARAGACEAE			
Cordyline fruticosa (L.) A. Chev.	*kī*	**Pol**	R
COMMELINACEAE			
Commelina diffusa N. L. Burm.	day flower	**Pol**	O
CYPERACEAE			
Kyllinga brevifolius Rottb.	*kili'o'opu*	Nat	C
ORCHIDACEAE			
Spathoglottis plicata Blume	Malayan ground orchid	Nat	R
PANDANACEAE			
Pandanus tectorius S. Parkinson ex Z	*hala*	**Ind**	C
POACEAE			
Andropogon virginicus L.	broomsedge	Nat	O
Axonopus compressus (Sw.) P. Beauv.	carpetgrass	Nat	A
Cynodon dactylon (L.) Pers.	Bermuda grass	Nat	O

Table 1 (continued).

Species listed by family	*Common name*	*Status*	*Abundance*
POACEAE (cont.)			
Eleusine indica (L.) Gaertn.	wire grass	Nat	O
Eragrostis brownei (Kunth) Nees ex Steud.	sheep grass	Nat	C
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	Nat	C
Megathyrsus maximus (Jacq.) B.K. Simon & W.L. Jacobs	Guinea grass	Nat	C
Melinus minutiflora P. Beauv.	molasses grass	Nat	O
Melinis repens (Willd.) Zizka	Natal redtop	Nat	A
Oplismenus hirtellus (L.) P. Beauv.	basketgrass	Nat	U
Paspalum conjugatum Bergius	Hilo grass	Nat	C
Paspalum scrobiculatum L.	ricegrass, *mau'u laiki*	**Ind?**	O
Panicum repens L.	torpedo grass	Nat	C
Setaria parviflora (Poir.) Kerguélen	yellow foxtail	Nat	C
Setaria palmifolia (J. König) Stapf	palmgrass	Nat	C
Sporobolus sp.	dropseed	Nat	R
Themeda villosa (Poir) A. Camus	Lyon's grass	Nat	C
Magnoliids			
LAURACEAE			
Persea americana Mill.	avocado	Nat	U
Eudicots			
ANACARDIACEAE			
Mangifera indica L.	mango	Nat	U
Schinus terebinthifolius Raddi	Christmas berry	Nat	R
APOCYNACEAE			
Alstonia macrophylla Wall. Ex G.Don	---	Nat	O
ARALIACEAE			
Heptapleurum actinophyllum (Endl.) Lowrey & G.M. Plunkett	octopus tree	Nat	O
ASTERACEAE (COMPOSITAE)			
Ageratum conyzoides L.	*maile hohono*	Nat	C
Bidens alba (L.) DC. var. *radiata* (Sch.Bip.) Ballard ex Melchert	Spanish needle, beggartick	Nat	C
Conyza bonariensis (L.) Cronq.	hairy horseweed	Nat	C
Crassocephalum crepidioides (Benth.) S. Moore	redflower ragweed	Nat	C
Emilia sonchifolia (L.) Raf. var. sonchifolia	Flora's paintbrush	Nat	O

Table 1 (continued).

Species listed by family	*Common name*	*Status*	*Abundance*
ASTERACEAE (cont.)			
Erechtites valerianifolia (Wolf) DC.	fireweed	Nat	O
Pluchea carolinensis (Jacq.) G. Don	sourbush	Nat	R
Spagneticola trilobata (L.) Pruski	wedelia	Nat	C
Youngia japonica (L.) DC.	Oriental hawksbeard	Nat	R
BEGONIACEAE			
Begonia hirtella Link	begonia	Nat	R
BIGNONIACEAE			
Spathodea campanulata P. Beauv.	African tulip tree	Nat	C
CANNABACEAE			
Trema orientalis (L.) Blume	gunpowder tree	Nat	A
CONVOLVULACEAE			
Ipomoea obscura (L.) Ker-Gawl.	---	Nat	R
Ipomoea trilobata L.	little bell	Nat	R
CLUSIACEAE			
Clusia rosea Jacq.	autograph tree	Nat	O
CUCURBITACEAE			
Momordica charantia L.	balsam pear	Nat	U
EUPHORBIACEAE			
Aleurites moluccana (L.) Willd.	*kukui*	**Pol**	O
Euphorbia prostrata Aiton	prostrate spurge	Nat	A
Euphorbia hirta L.	garden spurge	Nat	C
Macaranga mappa (L.) Müll. Arg.	bingabing	Nat	A
Macaranga tanarius (L.) Mull. Arg.	---	Nat	O
Phyllanthus debilis Klein ex Willd.	niuri	Nat	C
Ricinus communis L.	*pa'aila*, castor bean	Nat	R
FABACEAE			
Acacia confusa Merr.	Formosan koa	Nat	R
Chamaecrista nictitans (L.) Moench	partridge pea	Nat	C
Crotalaria assamica Benth.	rattlepod	Nat	C
Crotalaria incana L.	fuzzy rattlepod	Nat	R
Crotalaria retusa L.	rattlepod	Nat	C
Desmodium incanum DC.	Spanish clover	Nat	C
Falcataria moluccana (Miq.) Barneby & J.W.Grimes	Moluccan albizia	Nat	U
Mimosa pudica L. var. unijuga (Duchass. & Walp.) Griseb.	sensitive plant	Nat	C
Mucuna gigantea (Willd.) DC. subsp. *gigantea*	*kā'e'e*, sea bean	**Ind**	R

Table 1 (continued).

Species listed by family	*Common name*	*Status*	*Abundance*
FABACEAE (cont.)			
Senna alata (L.) Roxb.	candle bush	Nat	R
LAMIACEAE			
Mesophaerum pectinatum (L.) Kuntze	comb hyptis	Nat	O
LYTHRACEAE			
Cuphea carthagenensis (Jacq.) Macbr.	tarweed	Nat	C
MALVACEAE			
Melochia umbellata (Houtt.) Stapf	---	Nat	A
Sida rhombifolia L.	Cuba jute	Nat	R
Waltheria indica L.	*'uhaloa*	**Ind**	R
MELASTOMATACEAE			
Miconia crenata (Vahl.) Michelang.	Koster's curse	Nat	C
Heterotis rotundifolia (Sm.) Jacq.-Fel.	---	Nat	O
Melastoma septemnervium Lour.	---	Nat	C
MORACEAE			
Ficus microcarpa L. fil.	Chinese banyan	Nat	R
MYRTACEAE			
Metrosideros polymorpha Gaud. var. *polymorpha*	*'ōhi'a lehua*	**End**	U
Psidium cattleyanum Sabine	strawberry guava	Nat	C
Psidium guajava L.	common guava	Nat	R
OROBANCHACEAE			
Castilleja arvensis Cham. & Schltdl.	Indian paintbrush	Nat	R
PLANTAGINACEAE			
Plantago major L.	broad-leaved plantain	Nat	C
POLYGALACEAE			
Polygala paniculata L.	milkwort	Nat	C
PRIMULACEAE			
Ardisia elliptica Thunb.	shoebutton ardisia	Nat	C
ROSACEAE			
Rubus rosifolius Sm.	thimbleberry	Nat	C
RUBIACEAE			
Paederia foetida L.	*maile pilau*	Nat	C
Spermacoce remota Lam.	buttonweed	Nat	C
SOLANACEAE			
Physalis peruviana L.	Cape gooseberry	Nat	U
Solanum americanum Mill.	*pōpolo*	**Ind**	U
URTICACEAE			
Cecropia obtusifolia Bertol.	guarumo, trumpet tree	Nat	A

Table 1 (continued).

Species listed by family	*Common name*	*Status*	*Abundance*
VERBENACEAE			
Citharexylum caudatum L.	fiddlewood	Nat	C
Lantana camara L.	lantana	Nat	C
Stachytarpheta australis Moldenke	---	Nat	C

Legend to Table 1

STATUS = distributional status for the Hawaiian Islands:
- **End** = endemic; native uniquely to the Hawaiian Islands.
- **Ind** = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
- Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
- Orn = A cultivated plant; a species not known to be naturalized (spreading on its own) in Hawai'i.
- **Pol** = An early Polynesian introduction, introduced before 1778.

ABUNDANCE = occurrence ratings for plant species:
- R – Rare — seen in only one or perhaps two locations.
- U - Uncommon — seen at most in several locations.
- O - Occasional — seen with some regularity.
- C - Common — observed numerous times during the survey.
- A - Abundant — found in large numbers; may be locally dominant.

Avian Fauna

A total of 48 individual birds of eight species and representing five separate families, was recorded during station counts (Table 2). All the avian species recorded are alien to the Hawaiian Islands.

Table 2. Avian species detected on the Hilo WWWTP Phase 2 study site, Hilo, October 2022

Common Name	Species	Order Family	Status	RA
		COLUMBIFORMES COLUMBIDAE - Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*		A	0.25
Zebra Dove	*Geopelia striata*		A	2.50

Table 2 (continued).

Common Name	Species	Order Family	Status	RA
		PASSERIFORMES ZOSTEROPIDAE - White-eyes		
Warbling White-eye	*Zosterops japonicus*		A	3.00
		STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*		A	0.50
		ESTRILDIDAE - Estrildid Finches		
Common Waxbill	*Estrilda astrild*		A	0.50
		FRINGILLIDAE Carduline Finches & Allies Carduelinae - Carduline Finches and Hawaiian Honeycreepers		
House Finch	*Haemorhous mexicanus*		A	1.75
Yellow-fronted Canary	*Ceithagra mozambica*		A	1.50

Key to Table2.

Status:
A = Naturalized, non-native species (introduced).

RA : Relative Abundance ~ species count / number of point-count stations (n=4).

Avian diversity and densities were in keeping with the location and vegetation present within and around the survey area. Three species—Warbling White-eye (*Zosterops japonicus*), Zebra Dove (*Geopelia striata*), and Yellow-fronted Canary (*Ceithagra mozambica*)—accounted for 63% of all birds recorded during station counts. The most frequently recorded species was Warbling White-eye, accounting for 25% of the total number of individual birds recorded.

Mammalian Fauna

Two terrestrial mammalian species were detected during this survey: small Asian mongoose (*Herpestes javanicus*) and pig (*Sus scrofa*), the latter numerous within the WWTP and the surrounding area.

Discussion and Recommendations

Recommendations are partly based on U.S. Fish and Wildlife Service, Animal Avoidance and Minimization Measures (USFWS-PIFWO, 2922). Implementation of the recommendations (provided below as bulleted items) by the Project contractor will minimize impacts to listed species to the maximum extent practicable.

Floral Resources

Environments within the project area have been highly modified by human activities and are now dominated by non-native plant species. Native trees present include *'ōhi'a lehua* and *hala*. The other native species extant here are ferns along with the native *kā'e'e* vine, *pōpolo*, and *mau'u laiki* grass. Due to human activity, introduced feral ungulates, and competition with non-native plants, the area is dominated by common, naturalized plant species. None of the plant species observed are listed as endangered or threatened under either federal or State of Hawai'i endangered species statutes (HDLNR, 1998; USFWS, nd-a).

Avian Resources

All avian species detected in the survey are alien to the Hawaiian Islands. No native species were observed nor expected given the habitats present within the area and its location close to the town of Hilo.

Seabirds

It is possible that the endangered Hawaiian Petrel (*Puffinus sandwichesis*), Band-rumped Storm-Petrel (*Hydrobates castro*), and the threatened Newell's Shearwater (*Puffinus newelli*) over-fly the project area between April and the middle of December each year in small numbers. The primary cause of mortality in Hawaiian Petrels and Newell's Shearwaters in Hawai'i is thought to be predation by alien mammalian species at the nesting colonies (USFWS, 1983; Simons and Hodges, 1998; Ainley et al., 2001). Collision with man-made structures is considered the second most significant cause of mortality of these seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with man-made structures and, if not killed outright, become easy targets of opportunity for feral mammals (Hadley, 1961; Telfer, 1979; Sincock, 1981; Reed et al., 1985; Telfer et al., 1987; Cooper and Day, 1998; Podolsky et al., 1998; Ainley et al., 2001; Hue et al., 2001; Day et al., 2003). No suitable nesting habitats exists within or close to the project area for any of these three seabird species.

The principal potential impact that the project poses to protected seabirds is an increased threat that birds will be downed after becoming disoriented by lights associated with the construction if conducted during the nesting season. The two ways outdoor lighting can pose a threat to nocturnally flying seabirds is: 1) during construction, if it is deemed expedient or necessary to conduct night-time construction activities; or, 2) following build-out, security lighting is operated during the seabird nesting season.

- If night-time construction activity or equipment maintenance is proposed during the construction phases of the project, all associated lights should be shielded, and when large flood/work lights are used, they should be placed on poles that are high enough to allow the lights to be pointed directly at the ground (Reed et al., 1985; Teller et al., 1987). Deleterious impacts to transiting seabirds can be avoided if construction occurs during daylight hours and all outdoor lighting installed is fully "dark sky compliant" (HDLNR-DOFAW, 2016). DLNR recommends avoiding construction under night-time lighting between September 15 and December 15 (DLNR, 2016).

Hawaiian Hawk

Hawaiian Hawk (*Buteo solitarius*) was not recorded during our survey. This state listed species is regularly seen in the greater Hilo area (David, 2022). The forest habitat adjacent to the pipeline route is dense and not typical of habitat used by this species for nesting. Out of an abundance of caution it would be prudent to consider the following if removal of any large trees is contemplated :

- Prior to the initiation of clearing and grubbing of trees, a qualified biologist should conduct a Hawaiian Hawk nesting survey to ensure that no active nest is disturbed during clearing.

Mammalian Resources

The findings of the mammalian survey are consistent with the location of the property and habitats present on that property. Although no rodents were recorded, it is likely that some of the four established Muridae found on Hawai'i Island—roof rat (*Rattus rattus*), brown rat (*Rattus norvegicus*), Polynesian rat (*Rattus exulans hawaiiensis*), and European house mouse (*Mus musculus domesticus*)—use resources within the general area on a seasonal basis. These introduced rodents are deleterious to native ecosystems and native biota.

No mammalian species currently protected or proposed for protection under either the federal or State of Hawai'i endangered species programs were detected during this survey (DLNR, 2015; USFWS, nd-a).

Hawaiian hoary bat

It is probable that the Hawaiian hoary bat overflies the project area on a seasonal basis as they are regularly recorded in the greater Hilo area (David, 2022). The removal of trees within the project area could temporarily displace individual bats using the trees for roosting. As bats use multiple roosts within their home territories, the potential disturbance resulting from the removal of vegetation is likely to be minimal. However, during the pupping season, females carrying their pups may be less able to vacate a roost site if the tree is felled. Further, adult female bats sometimes leave their pups in the roost tree while they forage. Very small pups may be unable to flee a tree that is being felled.

- Potential adverse impacts from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 m (15 ft) between June 1 and September 15, the period in which bats may have pups.

Other Resources of Potential Concern

Critical Habitat

No federally delineated Critical Habitat for any species occurs within the Project area (USFWS, nd-b). There is no equivalent designation under State of Hawai'i endangered species statutes.

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A natural resources assessment for the future Hilo Wastewater Treatment Plant improvements Hilo, Island of Hawai'i

AECOS Inc.
45-939 Kamehameha Highway
Suite 104
Kāne'ohe, Hawai'i 96744

February 28, 2023

A natural resources assessment for the future Hilo Wastewater Treatment Plant improvements Hilo, Island of Hawai'i

February 28, 2023 **DRAFT** *AECOS* No. 1711C

Reginald E. David
AECOS Inc.
45-939 Kamehameha Highway, Suite 104
Kāne'ohe, Hawai'i 96744
Phone: (808) 234-7770 Fax: (808) 234-7775 Email: reggie@aecos.com

Introduction

The Hilo Wastewater Treatment Plant (WWTP) was constructed in the early 1990s, over 39 years ago at a site within Tax Map Key (TMK): 2-1-013:002 (Figure 1). The digester and headworks are crucial parts of the treatment process and must always remain in operation. Given their age, the Hawai'i County, Department of Environmental Management has determined replacement of these facilities is the most feasible alternative over making repairs. The replacement digester and headworks and related improvements will be sited adjacent to the existing facilities within an area previously cleared and graded during construction of the original of the WWTP.

AECOS Inc. was contracted by Wilson Okamoto Corporation to conduct natural resources surveys of the project site[1]. This report[2] presents results of the third survey conducted for the project site, which previously included the project Phase 1 and Phase 2 surveys (*AECOS*, 1711, 1711B). This most recent survey covers the following "future" structures (herein the "Project"; Figure 2):

Location 11 – Cogeneration
Location 21 – Headworks odor control
Location 22 –Warehouse Building
Location 26 – Digestor #4
Location 34 – Dryer building

[1] That is, the entire WWTP and force main to Hilo Harbor.
[2] This report is intended to become part of the public record and incorporated into an EA for the subject project.

Figure 1. Hilo WWTP location in relation to the Hilo International Airport.

Site Description

The Hilo WWTP is located southeast of the Hilo International Airport (Fig. 1) and surrounded by a chain link fence. The site was completely graded in 2018 or 2019 prior to the construction of the facilities; the ground within the currently fenced plant is either asphalt pavement or covered in crushed rock (Figures 3, 4 and 5). There is very little vegetation growing within the currently fenced WWTP—what is present is controlled by regular maintenance activities: weed whacking and application of herbicides. The area being proposed for a future warehouse building (Location 22) is currently a maintained lawn with a row of coconut trees (*Cocos nufiera*; see cover photo).

Methods

Botanical Survey

Reginald David surveyed the Project site on February 15, 2023. Plant species were identified as they were encountered around the proposed site improvements. Species names follow *Manual of the Flowering Plants of Hawai'i* (Wagner, Herbst, & Sohmer, 1990; Wagner & Herbst, 1999) for native and

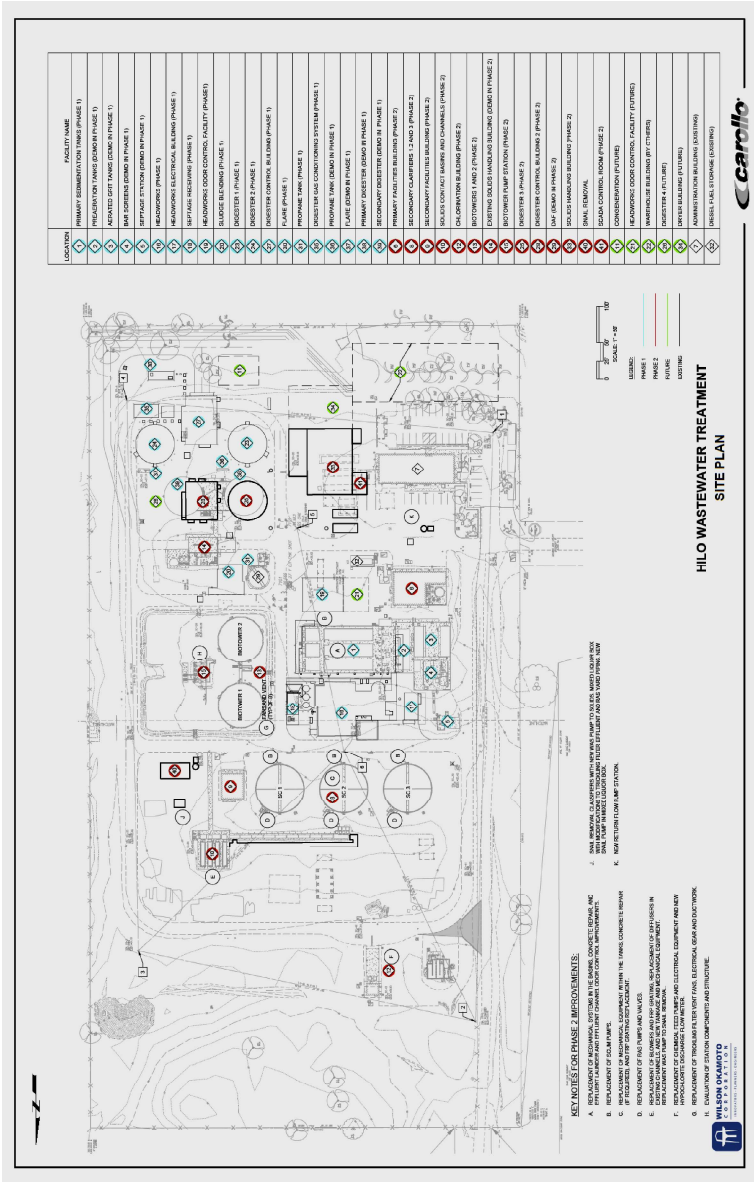

Figure 2 – Hilo WWTP schematic view showing locations of proposed new buildings and structures numbered in green.

Figure 3 – Location 11, cogeneration, the site is the vacant land in front of the structures.

Figure 4 – Location 26, digestor #4, the site is the vacant land in front of the structures.

Figure 5 – Location #21, headworks odor control; the site is the vacant land in front of the structures.

naturalized flowering plants, *Hawai'i's Ferns and Fern Allies* (Palmer, 2003) and *Taxonomic and Nomenclatural Updates to the Fern and Lycophyte Flora of the Hawaiian Islands* (Ranker et al, 2019) for ferns, and *A Tropical Garden Flora* (Staples & Herbst, 2005) for ornamental plants. More recent name changes for naturalized plant species follow Imada (2019).

Terrestrial Vertebrates Survey

Avian Survey

A bird survey was conducted by Reginald David in the morning hours of February 15, 2023. Birds were identified by visual observations aided by Leica 8 X 42 binoculars, and by listening for vocalizations. Avian species abundance was estimated based on the data gathered at three point-count stations: one located at the site of the proposed warehouse building (Location 22, cover image), one at the proposed digestor #4 (Location 26, Figure 5), and a third at the proposed headworks odor control (Location 21, Figure 6). A single eight-minute avian point-count was made at each of the count-stations. Weather conditions were ideal with unlimited visibility, no precipitation and winds between 1 and 2 kilometers per hour. The avian phylogenetic order and nomenclature used in this

report follows the AOU Check-List of North and Middle American Birds 2021, and the 63rd supplement to the checklist (Chesser et al., 2021, 2022).

Mammalian Survey

A list was made of mammals encountered during the survey. Indicators of mammalian presence, such as tracks, scat, and other sign were noted. Mammalian phylogenetic order and nomenclature follow *Mammal Species of the World* (Wilson and Reeder, 2005).

Results

Vegetation

The vegetation within the currently fenced Hilo WWTP is entirely short stature herbaceous species adapted to growing in minimal soil and conditions or regular disturbance (ruderal habitat). Vegetation on the site for the proposed warehouse building (Location 22, cover image) is a manicured lawn with coconut trees planted on it.

Flora

A listing of plants observed at the Project site is provided in Table 1. Overall, the vegetation is dominated by introduced (non-native) species. A total of 47 plant species were documented with two being indigenous (native) and one being an early Polynesian introduction. All are herbaceous species, with the exception of the coconut. No other trees or shrubs occur within the survey area.

Avian Fauna

A total of 48 individual birds of 11 species, representing eight separate families, was recorded during station counts (Table 2). All the avian species recorded are alien to the Hawaiian Islands.

Avian diversity and densities were in keeping with the location and vegetation present within the existing and immediately adjacent to the Hilo WWTP Three species—Common Myna (*Acridotheres tristis*), House Sparrow (*Passer domesticus*), and Zebra Dove (*Geopelia striata*)—accounted for 58% of all birds recorded during station counts. The most frequently recorded species was Common Myna, accounting for 27% of the total number of individual birds recorded.

Table 1. Plant species observed at and in the vicinity of the future improvement sites, Hilo WWTP, February 2023.

Species listed by family	*Common name*	*Status*	*Abundance*
Ferns and fern allies			
NEPHROLEPIDACEAE			
Nephrolepis brownii (Desv.) Hovenkamp & Miyam.	Asian sword fern	Nat	C
PSILOTACEAE			
Psilotum nudum (L.) P.Beauv.	*moa*	**Ind**	U
PTERIDACEAE			
Pityrogramma calomelanos (L.) Link	silver fern	Nat	R
THELYPTERIDACEAE			
Christella parasitica (L.) H. Lév.	---	Nat	C
Flowering Plants			
Monocotyledons			
ARECACEAE			
Cocos nucifera L.	*niu*, coconut	**Pol**	O
COMMELINACEAE			
Commelina diffusa N. L. Burm.	day flower	Nat	O
CYPERACEAE			
Cyperus brevifolius (Rottb.)Hassk.	*kili'o'opu*	Nat	C
POACEAE			
Axonopus compressus (Sw.) P. Beauv.	carpetgrass	Nat	A
Cynodon dactylon (L.) Pers.	Bermuda grass	Nat	O
Eleusine indica (L.) Gaertn.	wire grass	Nat	O
Eragrostis pectinacea (Michx.) Nees	Carolina lovegrass	Nat	C
Megathyrsus maximus (Jacq.) B.K. Simon & W.L. Jacobs	Guinea grass	Nat	C
Oplismenus hirtellus (L.) P. Beauv.	basketgrass	Nat	U
Paspalum conjugatum Bergius	Hilo grass	Nat	C
Setaria parviflora (Poir.) Kerguélen	yellow foxtail	Nat	C
Setaria palmifolia (J. König) Stapf	palmgrass	Nat	C
Sporobolus sp.	dropseed	Nat	R
Dicotyledons			
ASTERACEAE (COMPOSITAE)			
Ageratum conyzoides L.	*maile hohono*	Nat	C

Table 1 (continued).

Species listed by family	*Common name*	*Status*	*Abundance*
ASTERACEAE (cont.)			
Bidens alba (L.) DC. var. *radiata* (Sch.Bip.) Ballard ex Melchert	Spanish needle, beggartick	Nat	C
Conyza bonariensis (L.) Cronq.	hairy horseweed	Nat	C
Emilia sonchifolia (L.) DC.	Flora's paintbrush	Nat	O
Erechtites valerianifolia (Wolf) DC.	fireweed	Nat	O
Spagneticola trilobata (L.) Pruski	wedelia	Nat	C
Youngia japonica (L.) DC.	Oriental hawksbeard	Nat	R
BEGONIACEAE			
Begonia hirtella Link	begonia	Nat	R
CONVOLVULACEAE			
Ipomoea obscura (L.) Ker-Gawl.	---	Nat	R
Ipomoea trilobata L.	little bell	Nat	R
CUCURBITACEAE			
Momordica charantia L.	balsam pear	Nat	U
EUPHORBIACEAE			
Euphorbia prostrata Aiton	prostrate spurge	Nat	A
Euphorbia hirta L.	garden spurge	Nat	C
FABACEAE			
Chamaecrista nictitans (L.) Moench	partridge pea	Nat	C
Crotalaria assamica Benth.	rattlepod	Nat	C
Desmodium incanum DC.	Spanish clover	Nat	C
Mimosa pudica L. var. *unijuga* (Duchass. & Walp.) Griseb.	sensitive plant	Nat	C
LYTHRACEAE			
Cuphea carthagenensis (Jacq.) Macbr.	tarweed	Nat	C
MALVACEAE			
Sida rhombifolia L.	Cuba jute	Nat	R
Waltheria indica L.	*'uhaloa*	Ind	R
MELASTOMATACEAE			
Melastoma septemnervium Lour.	---	Nat	C
OROBANCHACEAE			
Castilleja arvensis Cham. & Schltdl.	Indian paintbrush	Nat	R
PLANTAGINACEAE			
Plantago major L.	broad-leaved plantain	Nat	C
POLYGALACEAE			
Polygala paniculata L.	milkwort	Nat	C
RUBIACEAE			
Spermacoce remota Lam.	buttonweed	Nat	C

Table 1 (continued).

Species listed by family	*Common name*	*Status*	*Abundance*
SCROPHULARIACEAE			
Lindernia crustacea (L.) F. v. Muell.	---	Nat	U
SOLANACEAE			
Solanum americanum Mill.	*pōpolo*	**Ind**	U
URTICACEAE			
Pilea microphylla (L.) Liebm.	artillery plant	Nat	C
VERBENACEAE			
Lantana camara L.	lantana	Nat	C
Stachytarpheta australis Moldenke	---	Nat	C

Legend to Table 1

STATUS = distributional status for the Hawaiian Islands:
Ind = indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
Nat = naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
Pol = An early Polynesian introduction, introduced before 1778.
ABUNDANCE = occurrence ratings for plant species:
R – Rare - seen in only one or perhaps two locations.
U - Uncommon - seen at most in several locations
O - Occasional - seen with some regularity
C - Common - observed numerous times during the survey
A - Abundant - found in large numbers; may be locally dominant.

Table 2. Avian species detected Hilo WWTP Improvements sites, Hilo, July, 2022

Common Name	Order Family Species	Status	RA
	COLUMBIFORMES		
	COLUMBIDAE - Pigeons & Doves		
Spotted Dove	*Streptopelia chinensis*	A	1.00
Zebra Dove	*Geopelia striata*	A	3.50
	PASSERIFORMES		
	CETTIIDAE - Cettia Warblers & Allies		
Japanese Bush-Warbler	*Horomis diphone*	A	0.50
	ZOSTEROPIDAE - White-eyes		
Warbling White-eye	*Zosterops japonicus*	A	2.50
	STURNIDAE - Starlings		
Common Myna	*Acridotheres tristis*	A	6.50

	PASSERIDAE - Old World Sparrows		
House Sparrow	*Passer domesticus*	A	4.00
	Carduline Finches & Allies		
	Carduelinae - Carduline Finches and Hawaiian Honeycreepers		
House Finch	*Haemorhous mexicanus*	A	1.00
Yellow-fronted Canary	*Ceithagra mozambica*	A	1.00
	CARDINALIDAE - Cardinals & Allies		
Northern Cardinal	*Cardinalis cardinalis*	A	0.50
	THRAUPIDAE - Tanagers		
	Thraupinae - Core Tanagers		
Yellow-billed Cardinal	*Paroaria capitata*	A	2.00
Saffron Finch	*Sicalis flaveola*	A	1.50

Legend to Table 2

Status:
A = Naturalized, non-native species (introduced).
RA : Relative Abundance ~ species count / number of point-count stations (n=3).

Mammalian Fauna

Two terrestrial mammalian species were detected during this survey. We saw small Asian mongoose (*Herpestes javanicus*) and numerous pigs (*Sus scrofa*), thec latter on the entrance road and Location 22.

Discussion and Recommendations

Recommendations are partly based on U.S. Fish and Wildlife Service, Animal Avoidance and Minimization Measures (USFWS-PIFWO, 2022). Implementation of the recommendations (provided below as bulleted items) by the Project contractor will minimize impacts to listed species to the maximum extent practicable.

Floral Resources

The vegetation within the existing facility is unremarkable. No species of any concern are present. No endangered or threatened species were found (HDLNR, 1998; USFWS, nd-a). Two native plant species are present, but neither is considered rare in the Hilo area nor across the Hawaiian Islands. Due to human and wild animal activity, the site is dominated by common, naturalized plant

species, and the site is maintained with mowing, weed whacking and with application of herbicides.

Avian Resources

All avian species detected are alien to the Hawaiian Islands. No native species were detected nor expected given the habitats present within the Hilo WWTP facility, or immediately adjacent to it.

Seabirds

It is possible that Hawaiian Petrel (*Puffinus sandwichesis*), Band-rumped Storm-Petrel (*Hydrobates castro*), and Newell's Shearwater (*Puffinus newelli*) over-fly the Project area between April and the middle of December each year in small numbers. The primary cause of mortality in Hawaiian Petrels and Newell's Shearwaters in Hawai'i is thought to be predation by alien mammalian species at the nesting colonies (USFWS, 1983; Simons and Hodges, 1998; Ainley et al., 2001). Collision with man-made structures is considered the second most significant cause of mortality of these listed seabird species in Hawai'i. Nocturnally flying seabirds, especially fledglings on their way to sea in the summer and fall, can become disoriented by exterior lighting. Disoriented seabirds may collide with man-made structures and, if not killed outright, become easy targets of opportunity for feral mammals (Hadley, 1961; Telfer, 1979; Sincock, 1981; Reed et al., 1985; Telfer et al., 1987; Cooper and Day, 1998; Podolsky et al., 1998; Ainley et al., 2001; Hue et al., 2001; Day et al., 2003). No suitable nesting habitat exists within or close to the Project area for any of these three seabird species.

The principal potential impact that the Project poses to protected seabirds is an increased threat that birds will be downed after becoming disoriented by lights associated with the construction if undertaken during the nesting season and if it is deemed expedient or necessary to conduct night-time construction activities. As well, following build-out, security lighting operated during the seabird nesting season can pose a hazard.

- If night-time construction activity or equipment maintenance is proposed during the construction phases of the project, all associated lights should be shielded, and when large flood/work lights are used, they should be placed on poles that are high enough to allow the lights to be pointed directly at the ground (Reed et al., 1985; Teller et al., 1987). Deleterious impacts to transiting seabirds can be avoided if construction occurs during daylight hours and all outdoor lighting installed is fully "dark sky compliant" (HDLNR-DOFAW, 2016). DLNR recommends

avoiding construction-related night-time lighting between September 15 and December 15 (DLNR, 2016).

When the switch over from the existing facilities to the new ones occur, that is traditionally done during the lowest peak flow periods, ergo sometime after midnight. That switch over will require construction lighting at night on at least one night. All construction lighting required to safely make the switch over should be pointed so that the luminaire is parallel to the ground and that the lights are sufficiently shielded to ensure that no light escapes in an upward direction, or off the site.

Hawaiian Hawk

Hawaiian Hawk (*Buteo solitarius*) was not recorded during our survey. This state listed species is regularly seen in the greater Hilo area (David, 2023). There are no trees within the developed and currently fenced WWTP except for the several coconut trees on Location 22. Coconut trees do not provide suitable nesting habitat for this raptor, thus it is not expected that the proposed improvements will result in deleterious impacts to this endemic species.

Mammalian Resources

The findings of the mammalian survey are consistent with the location of the property and habitats present on that property. Although no rodents were recorded it is likely that some of the four established Muridae found on Hawai'i Island—roof rat (*Rattus rattus*), brown rat (*Rattus norvegicus*), Polynesian rat (*Rattus exulans hawaiiensis*), and European house mouse (*Mus musculus domesticus*)—use resources within the general Project area on a seasonal basis. These introduced rodents are deleterious to native ecosystems and native faunal species.

With the exception of the Hawaiian hoary bat , no mammalian species currently protected or proposed for protection under either the federal or State of Hawai'i endangered species programs were detected or expected during this survey (DLNR, 2015; USFWS, nd-a).

Hawaiian hoary bat

It is probable that the Hawaiian hoary bat or *'ōpe'ape'a* (*Lasiurus cinereus semotus*) overflies the Project area on a seasonal basis as they are regularly recorded in the greater Hilo area (David, 2023). The removal of trees can temporarily displace individual bats using those trees for roosting. As bats use multiple roosts within their home territories, the potential disturbance resulting

from the removal of vegetation is likely to be minimal. However, during the pupping season, females carrying their pups may be less able to vacate a roost site if the tree is felled. Further, adult female bats sometimes leave their pups in the roost tree while they forage. Very small pups may be unable to flee a tree that is being felled.

No trees are present in the construction areas at Locations 11, 21, 26 and 34; thus, it is not expected that the construction will result in deleterious impacts to this endangered species. The removal of coconut trees at Location 22 has the potential to disturb roosting bats.

- Potential adverse impacts from such disturbance can be avoided or minimized by not clearing woody vegetation taller than 4.6 m (15 ft) between June 1 and September 15, the period in which bats may have pups.

Other Resources of Potential Concern

Critical Habitat

No federally delineated Critical Habitat for any species occurs within the Project area (USFWS, nd-b). There is no equivalent designation under State of Hawai'i endangered species statutes.

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Natural Resources Assessment. HILO WWTP IMPROVEMENTS

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APPENDIX B
Section 7 Consultation
U.S. Fish and Wildlife Services

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawai‘i 96850

In Reply Refer To:
2023-0064102-S7-001

May 2, 2023

Chane Hayashida
County of Hawai‘i County
Department of Environmental Management
Wastewater Branch
2827 Waimano Home Road, Room 207
Pearl City, HI 96782

Subject: Informal Consultation for Hilo WWTP Rehabilitation and Replacement Project Phase I and Phase II, Hawai‘i County

Dear Chane Hayashida:

The U.S. Fish and Wildlife Service (Service) received your revised request for informal consultation on April 17, 2023, requesting our concurrence with your determination that the proposed WWTP project may affect, but is not likely to adversely affect the following species:

- ‘Ōpe‘ape‘a or Hawaiian hoary bat (*Lasiurus cinereus semotus*),
- Nēnē or Hawaiian goose (*Branta sandvicensis*),
- Hawaiian waterbirds, including koloa or Hawaiian duck (*Anas wyvilliana*), ae‘o or Hawaiian stilt (*Himantopus mexicanus knudseni*), and ‘alae ke‘oke‘o or Hawaiian coot (*Fulica americana alai*),
- Hawaiian seabirds, including the ‘ua‘u or Hawaiian petrel (*Pterodroma sandwichensis*), ‘a‘o or Newell’s Townsend’s shearwater (*Puffinus auricularis newelli*), and the ‘akē‘akē or Hawai‘i distinct population segment of band-rumped storm-petrel (*Oceanodroma castro*),
- Federally listed flowering plants, ferns, and allies, ‘alani (*Melicope zahlbruckneri*), hau kuahiwi (*Cyrtandra nanawaleensis* and *Hibiscadelphus giffardianus*), and *Microlepia stirgosa var. mauiensis*.

This letter has been prepared under the authority of, and in accordance with, section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531 *et seq*.) as amended (ESA).

Project Description

The County of Hawai‘i Department of Environmental Management (COH-DEM) is proposing to undertake the Hilo WWTP Rehabilitation and Replacement Project Phase I and II using the U.S. Environmental Protection Agency Clean Water State Revolving Fund program. The COH-DEM proposed to replace and make improvements to critical facilities and then subsequently construct other new facilities to improve the treatment processes at the WWTP. These replacement facilities and subsequent improvements will be implemented in phases. The replacement facilities are sited nearby or adjacent to the ones being replaced within the existing developed area of the WWTP and within areas previously cleared to the south and east of the plant. Both the proposed replacement and new facilities are needed to ensure continued current operations and to meet future needs at the WWTP. In addition, facilities will be developed to meet current code requirements and to ensure the long-term operation of the plant functions.

The existing Hilo WWTP is located within a relatively undeveloped area of South Hilo on approximately 4,115 feet (about 0.78 miles) southeast of Runway 26 on Hilo International Airport, (Figures 1 and 2). The plant was constructed by the County in the early 1990s has since been operated by the COH-DEM. The developed facilities of the WWTP occupy an area of about 8.4 acres within the 15-acre area. The adjacent areas immediately surrounding existing plant facilities are cleared and have largely remained undeveloped, serving as laydown and staging areas for WWTP maintenance and operations.

Phase 1 of the project consists of the replacement of critical core functions and facilities within the 8.4-acre developed area at the WWTP or within the adjacent previously cleared areas, including the following:

- Replacement of the headworks, including associated improvements (septage receiving facility, headworks electrical building, and the odor control system);
- Replacement of two anaerobic digesters, including associated improvements (sludge blending tanks with odor control facilities, digester control building, digester gas conditioning system, and waste gas flare); and
- Demolition of the existing headworks and digester facilities upon completion of the replacement facilities.

Subsequent Phases (identified as Phase 2 and Future) of the proposed project consist of:

- Facilities to upgrade and improve treatment processes with resultant improvement to the quality of the effluent;
- Facilities for odor control; and
- Facilities to improve overall operations of the WWTP. These improvements encompass a variety of improved or new plant components affecting secondary treatment, solids handling, warehousing, storage and maintenance functions, and operational control facilities.

Similarly, these project-related ground disturbances would include excavation and grading within the developed area of the plant site for the installation of new equipment, structures, buildings, and associated utilities.

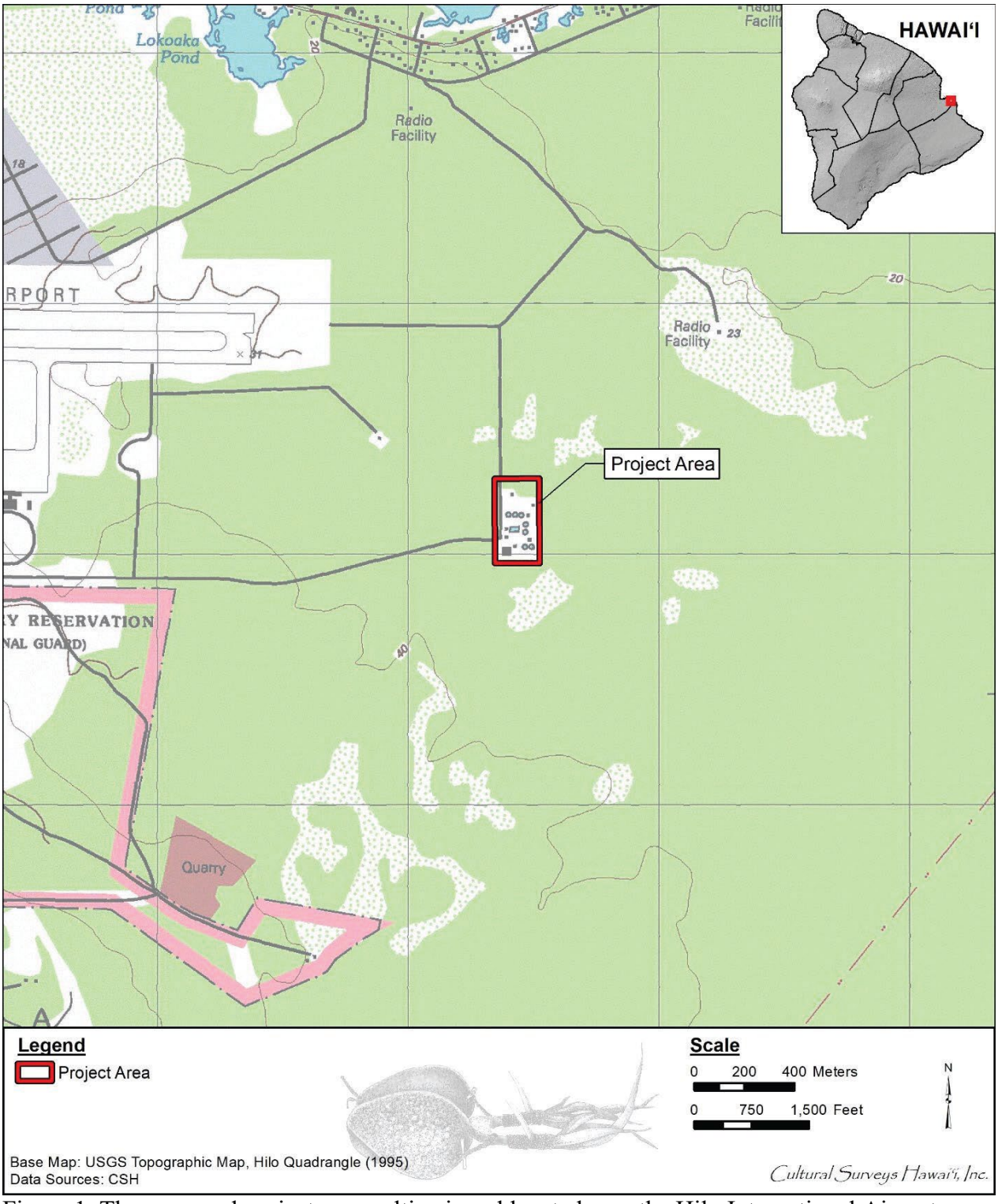

Figure 1. The proposed project area oultine in red located near the Hilo International Airport.

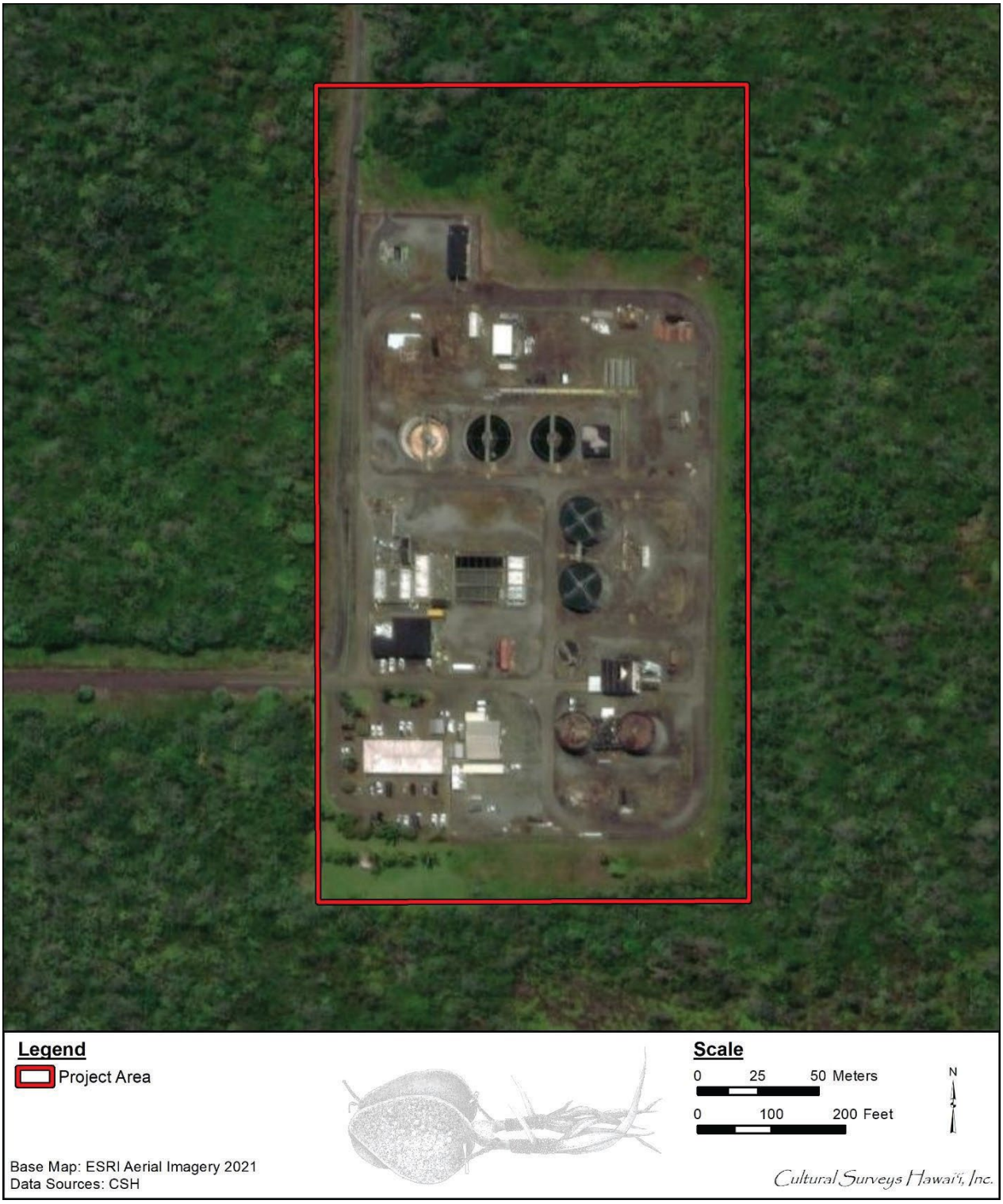

Figure 2. Aerial photograph of proposed project area outlined in red.

Avoidance and Minimization Measures

Conservation measures will be employed to avoid and minimmize effects to federally listed species:

- Project related ground disturbances will be limited to area within developed WWTP site and adjacent previously cleared areas to the north, east, and south.
- No woody plants greater than 15-ft tall will be disturbed during from June 1 – September 15.
- No barbed wire will be installed.
- Avoid nighttime construction activities during the seabird fledging season (September 15 – December 15).
- Fully shield all outdoor lights so the bulb can only be seen from below.
- Install automatic motion sensor switches 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 fledging period, September 15 through December 15.
- Incorporate the Service's Best Management Practices for Work in Aquatic Environments into the project design.

Effects to Listed Species

Hawaiian hoary bat

The Hawaiian hoary bat roosts in both exotic and native woody vegetation across all islands and will leave young unattended in trees and shrubs while foraging. Hawaiian hoary bats may be present and exposed to project-related effects. If trees or shrubs 15 ft or taller are cleared during the pupping season, young bats could be harmed or killed since they are too young to fly or may not move away. Additionally, Hawaiian hoary bats forage for insects from as low as 3 ft to higher than 500 ft above the ground and can become entangled in barbed wire used for fencing.

To avoid adverse effects to the Hawaiian hoary bat the project will avoid disturbing, removing, or trimming woody plants greater than 15-ft tall during the bat birthing and pup rearing season (June 1 through September 15). Additonally, the project will not use barbed wire in the project area. We do not expect adverse effects to Hawaiian hoary bats because there are no trees located in most of the project area and where there are trees (coconut), the project will not disturb, remove, or trim woody plants greater than 15-ft tall during the bat birthing and pup rearing season (June 1 through September 15) and no barbed wire fencing will be used. If adult or volant Hawaiian hoary bats are present during construction, we expect human presence and disturbance will cause them to leave the site. Any nonvolant young are unlikely to be measurably disrupted from their normal behaviors.

Based on the proposed project design and implementation of these avoidance and minimization measures, Hawaiian hoary bats are extremely unlikely to be injured, killed, or measurably disrupted from their normal behaviors. Therefore, effects to the Hawaiian hoary bat are insignificant.

Hawaiian goose

The Hawaiian goose may be observed in a variety of habitats, but prefer open areas, such as pastures, golf courses, wetlands, natural grasslands and shrublands, and lava flows. In some areas Hawaiian geese are found in open, mowed fields such as near the project area. Additionally, Hawaiian geese are known to be in the nearby Keaukaha area, particularly around Lokowaka Pond, and so project personnel should implement the following measures if Hawaiian geese are found near the project areas.

- Project personnel will not approach, feed, or disturb Hawaiian geese.
- If Hawaiian geese are observed loafing or foraging within the project area during the breeding season (September through April), a biologist familiar with Hawaiian goose nesting behavior will survey for nests in and around the project area prior to the resumption of any work. A biologist will repeat surveys after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest).
- If a nest is discovered within a radius of 150 ft of proposed project, or a previously undiscovered nest is found within the 150-ft radius after work begins the work will cease immediately, and project proponents will contact the Service for further guidance.
- In areas where Hawaiian geese are known to be present, reduced speed limits will be posted and enforced, and project personnel and contractors will be informed of the presence of federally listed species on-site.

Service-recommended avoidance and minimization measures for the Hawaiian goose will be implemented. Hawaiian goose present and exposed to any project-related work may be temporarily disturbed but are unlikely to be measurably disrupted from their normal behaviors. We do not expect any nest failure, injury, or mortality of Hawaiian goose. Therefore, effects to the Hawaiian goose are insignificant.

Hawaiian waterbirds

Hawaiian waterbirds are currently found in a variety of wetland habitats including freshwater marshes and ponds, coastal estuaries and ponds, artificial reservoirs, *Colocasia esculenta* (kalo or taro) loʻi or patches, irrigation ditches, and sewage treatment ponds. Hawaiian stilts may also be found wherever ephemeral or persistent standing water may occur. The project area currently does not provide these types of suitable habitats and surveys did not show any waterbirds to be present in the area, however the WWTP is located approximately one mile from Lokowaka Pond where Hawaiian waterbirds are present. Additionally, Hawaiian waterbirds may be attracted to areas of standing water that are inadvertently created during construction activities. The following measures will be implemented to avoid creating attractive habitat and associated adverse effects to Hawaiian waterbirds:

- In areas where waterbirds are known to be present, the project will post and implement reduced speed limits, and inform project personnel and contractors about the presence of endangered species on site.
- A biological monitor that is familiar with the species' biology will conduct Hawaiian waterbird nest surveys where appropriate habitat occurs within the vicinity of the proposed project site prior to project initiation. The monitor will repeat surveys again within 3 days of project initiation and after any subsequent delay of work of 3 or more days (during which the birds may attempt to nest). If a nest or active brood is found, the project will:

- Contact the Service within 48 hours for further guidance.
- Establish and maintain a 100-ft buffer around all active nests and/or broods until the chicks have fledged where potentially disruptive activities or habitat alteration would be avoided within this buffer.
- A biological monitor that is familiar with the species' biology will be present on the project site during all construction or earth-moving activities until the chicks fledge to ensure that Hawaiian waterbirds and nests are not adversely affected (i.e., mortality of young, or parents kept from the nest).

The project will implement Service-recommended measures as outlined above to avoid and minimize impacts to Hawaiian waterbirds. No Hawaiian waterbird habitat exists at this site so nests, chicks, and fledglings would not be injured or killed, and adults would not be kept from the nests. Hawaiian waterbirds are unlikely to be measurably disrupted from their normal behaviors. Therefore, effects to Hawaiian waterbirds are insignificant.

Hawaiian seabirds

Hawaiian seabirds may traverse the project area at night during the breeding, nesting, and fledging seasons (March 1 to December 15). The project will avoid nighttime lighting and construction during the seabird fledging period, September 15 through December 15.

Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may become exhausted and collide with nearby wires, buildings, or other structures or they may land on the ground. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable to light attraction.

The following measures will be implemented to avoid adverse effects to Hawaiian seabirds:

- Fully shield all outdoor lights so lighting can only be seen from below.
- Install automatic motion sensor switches 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 fledging period, September 15 through December 15.

Based on the proposed project design and implementation of Service-recommended avoidance and minimization measures for Hawaiian seabirds, Hawaiian seabirds traversing the area at night are unlikely to be measurably disrupted from their normal behaviors. Therefore, effects to Hawaiian seabirds are insignificant.

Listed plants

Service records indicate the federally listed plants and ferns, *Melicope zahlbruckneri*, *Cyrtandra nanawaleensis*, *Hibiscadelphus giffardianus*, and *Microlepia stirgosa var. mauiensis* may occur in the project area. Surveys conducted in the area by AECOS Inc., did not record any federally listed plants species in the project area. Because no listed plants were found within the proposed project footprint, we do not expect these plants would be present or exposed to project-related

activities associated with construction of the proposed project. Therefore, effects to federally listed plants are discountable.

Summary

Based on the information provided, including surveys by AECOS Inc., implementation of Service-recommended avoidance and minimization measures, and our assessment of potential project impacts, we anticipate that the potential for adverse effects to the Hawaiian hoary bat, Hawaiian goose, Hawaiian waterbirds, Hawaiian seabirds, and the federally listed plants are insignificant or discountable. We concur with your determination that this project may affect but is not likely to adversely affect these federally listed species. Re-initiation of consultation is required and shall be requested:

- If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered;
- If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the written concurrence; or,
- If a new species is listed or critical habitat designated that may be affected by the identified actions.

Thank you for protecting federally listed species. If you have any questions, please contact Colleen Cole at colleen_cole@fws.gov or Lindsy Asman at lindsy_asman@fws.gov. When referring to this project, please include this reference number: 2023-0064102-S7-001.

Sincerely,

Lindsy Asman
Island Team Manager
Maui Nui and Hawai‘i Island

Encl.

APPENDIX C

Draft Literature Review and Field Inspection
Cultural Surveys Hawai‘i

Draft
Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Improvements Projects, Waiākea Ahupua‘a, South Hilo District, Hawai‘i Island TMK: (3) 2-1-013:002 por.

Prepared for
Wilson Okamoto Corporation
on behalf of the
County of Hawai‘i, Department of Environmental Management (DEM)

Prepared by
Sarah Wilkinson, B.A.,
Olivier M. Bautista, B.A.,
and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: WAIAKEA 36)

March 2023

O‘ahu Office
P.O. Box 1114
Kailua, Hawai‘i 96734
Ph.: (808) 262-9972
Fax: (808) 262-4950

www.culturalsurveys.com

Hawai‘i Office
399 Hualani St. #124
Hilo, Hawai‘i 96720
Ph.: (808) 965-6478
Fax: (808) 965-6582

Reference	Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Improvements Projects, Waiākea Ahupua‘a, South Hilo District, Hawai‘i Island, TMK: (3) 2-10-013:002 por. (Wilkinson et al. 2023)
Date	March 2023
Project Numbers	Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: WAIAKEA 36 Clean Water State Revolving Fund (CWSRF) Project Numbers: C150062-53 (Rehabilitation and Replacement Phase 1) and C150062-54 (Rehabilitation and Replacement Phase 2)
Investigation Permit Number	CSH completed the field inspection under archaeological fieldwork permit numbers 22-02 and 23-30, issued by the Hawai‘i State Historic Preservation Division (SHPD) per Hawai‘i Administrative Rules (HAR) §13-282.
Land Jurisdiction	State
Agencies	Hawai‘i State Department of Health (DOH); SHPD; County of Hawai‘i, Department of Environmental Management (DEM)
Project Funding	State of Hawai‘i (revolving fund); County of Hawai‘i
Project Proponent and Contact	County of Hawai‘i DEM Ramzi Mansour, Director 345 Kekuanaoa Street, Suite 41 Hilo, HI 96720 Attention: Dora Beck Email: cohdem@hawaiicounty.gov
Planning Consultant for the Project	John Sakaguchi AICP, Vice President & Director Wilson Okamoto Corporation 1907 South Beretania Street, Suite 400 Honolulu, HI 96826 Office: (808) 946-2277 Fax: (808) 946-2253 Email: jsakaguchi@wilsonokamoto.com
Project Location	The project area is located in the town of Hilo on the windward side of Hawai‘i Island. The project area comprises the county’s existing Hilo Wastewater Treatment Plant (WWTP) property, which is located at the eastern end of Kekuanaoa Place approximately 4,115 feet (about 0.78 mile) southeast of Runway 26 on Hilo International Airport. The project area is shown on a portion of the 1995 Hilo U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle on Hawai‘i Island (Figure 1), a tax map plat (Figure 2), and a 2021 aerial photograph (Figure 3).

Project Description and Related Ground Disturbance	The existing Hilo WWTP was constructed by the County in the early 1990s and, since then, has been operated the County of Hawai‘i Department of Environmental Management (COH-DEM). During construction of the Hilo WWTP, an area of 14.899 acres assigned to the County was cleared of vegetation and graded for construction. The developed facilities of the WWTP occupy an area of about 8.4 acres within the 14.899-acre area. The adjacent areas immediately surrounding existing plant facilities lie to the south, east and north of the 8.4-acre developed area. These cleared areas have largely remained undeveloped and have served as laydown and staging areas for WWTP maintenance and operations. The nearest residential area lies across the runway and over one (1) mile to the north of the WWTP. The relatively flat terrain, intervening vegetation and the distance provide a visual buffer between the residential area and the WWTP. In response to these condition assessments, the COH-DEM is proposing to undertake replacement and related improvements to critical facilities and then subsequently construct other new facilities to improve the treatment processes at the WWTP. These replacement facilities and subsequent improvements will be implemented in phases. The replacement facilities are sited nearby or adjacent to the ones being replaced within the existing developed area of the WWTP and within areas previously cleared adjacent areas to the south and east of the plant. Both the proposed replacement and new facilities are needed to ensure continued current operations and to meet future needs at the WWTP. In addition, facilities will be developed to meet current code requirements and to ensure the long-term operation of the plant functions. Phase 1 of the subject project consists of the replacement of critical core functions and facilities within the 8.4-acre developed area at the WWTP or within the adjacent previously cleared areas, including the following: • Replacement of the headworks, including associated improvements (septage receiving facility, headworks electrical building, and the odor control system); • Replacement of two anaerobic digesters, including associated improvements (sludge blending tanks with odor control facilities, digester control building, digester gas conditioning system, and waste gas flare; and • Demolition of the existing headworks and digester facilities upon completion of the replacement facilities. These Phase 1 improvements are depicted on Figure 4.

	As previously stated, the replacement facilities and associated improvements are sited nearby or adjacent to the facilities being replaced in areas which were cleared of vegetation during construction of WWTP. Subsequent Phases (identified as “Phase 2” and “Future”) of the proposed project consist of: • Facilities to upgrade and improve treatment processes with resultant improvement to the quality of the effluent, • Facilities for odor control, and • Facilities to improve overall operations of the WWTP. These improvements encompass a variety of improved or new plant components affecting secondary treatment, solids handling, warehousing, storage and maintenance functions, and operational control facilities (see Figure 4). Similarly, these project-related ground disturbances would include excavation and grading within the developed area of the plant site for the installation of new equipment, structures, buildings, and associated utilities. The replacement and upgrade facilities do not include water features or create temporary standing water areas that could attract wildlife, including various listed species of waterbirds. Also, no planting of trees is included in the construction plans. Further, during night-time cut over operations to avoid affecting seabirds that may be overflying the project site, the contractor will need to be notified that any lighting should be pointed so the luminaire is parallel to the ground and be sufficiently shielded to ensure no light escapes in an upward direction and off site. Further, to the extent possible, night-time lighting be avoided between September 15 and December 15. Lastly, no offsite construction activities are shown in the construction plans.
Project Area Acreage	The project area comprises a 14.899-acre (6.029-hectare) portion of 2,407.756-acre (974.384-hectare) parcel TMK: (3) 1-2-013:002
Document Purpose and Historic Preservation Regulatory Context	This investigation was conducted—through historical, cultural, and archaeological background research and a field inspection of the project area—to determine the likelihood that archaeological historic properties may be affected by the project. This document is intended to facilitate the project’s planning and support the project’s historic preservation review compliance. This investigation does not fulfill the requirements of an archaeological inventory survey (AIS) investigation, per HAR §13-276.

	This information may also be used to support the DEM's consultation with the SHPD regarding the project's necessary historic preservation review steps pursuant to HAR §13-275. The Hilo Wastewater Treatment Plant project involves funding from the Clean Water State Revolving Fund (CWSRF) and is therefore an undertaking requiring compliance with Section 106 of the National Historic Preservation Act (NHPA) and the Archaeological and Historic Preservation Act (AHPA). The EPA administers the CWSRF program, which authorizes capitalization grants to state agencies in Region 9, including the Hawai‘i State DOH. In turn, the DOH Wastewater Branch provides assistance to county and state agencies for water pollution control projects. In October 2015 the EPA authorized the DOH to undertake consultation with the State Historic Preservation Officer (SHPO), Native Hawaiian organizations (NHOs), and interested parties for projects funded under the CWSRF. Section 106 consultation will be initiated at a future date for this project.
Natural Environment	The Hilo WWTP is situated on the windward side of Hawai‘i Island, on the lower eastern slope of Mauna Loa in the *ahupua‘a* (traditional land division) of Waiākea. The plant is within a generally undeveloped area on the eastern outskirts of Hilo Town. It is 1.8 km (1.2 miles) inland of the Keaukaha coast, at approximately 10 m (33 feet [ft]) above mean sea level (amsl). Rainfall in the vicinity of the plant averages 130 inches per year (Giambelluca et al. 2013). No perennial streams or other surface water features are in proximity. The natural topography in the vicinity of the Hilo WWTP is mildly sloping toward the coast, which is to the north. The plant location has been subjected to extensive prior disturbance associated with development of the existing sewage facilities. This development has completely altered the natural terrain throughout the plant (and project area). According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Sato et al. (1973), the majority of the project area overlies Papai extremely stony muck 3–25% slopes (rPAE; Figure 5). This soil type is characterized as "well-drained, thin, extremely stony organic soils over fragmental Aa [rough, broken] lava" … "used mostly for woodland" (Sato et al. 1973:46). Small areas at the northwestern corner and along the southern boundary of the project area are indicated to overlie *pāhoehoe* (smooth, unbroken) lava flows (rLW; see Figure 5). The Hilo WWTP is devoid of vegetation aside from maintained grassy areas surrounding the fenced plant facility, a small area of secondary forest consisting of predominately invasive species at the northeastern corner of the property, and some ornamental landscaping located

	around the administrative buildings at the plant entrance. The plant property is surrounded by dense forest consisting of a mix of native and introduced species.
Built Environment	The project area is within the existing Hilo WWTP which is accessed from Kekuanaoa Place (see Figure 3). The Hilo WWTP is approximately 1.3 km (0.78 miles) southeast of Runway 26 at Hilo International Airport. The nearest residential area lies across the runway and over one (1) mile to the north of the WWTP. During construction of the Hilo WWTP, the entire 14.899-acre project site was cleared of vegetation and graded. The approximately 8.4-acre improved portion of the property comprises the existing WWTP facility. Parking areas and administration buildings are located in the southwestern corner of the facility, and the remainder of the plant contains various sewage facilities, support infrastructure, and diesel fuel storage (see Figure 3 and Figure 4). The ground surface is level throughout with paved and graveled areas. The areas immediately surrounding the 8.4-acre developed area to the south, east, and north have largely remained undeveloped and have served as laydown and staging areas for WWTP maintenance and operations.
Background Research Methods	Background research included a review of previous archaeological studies on file at the SHPD; review of documents at Hamilton Library of the University of Hawai‘i, the Hawai‘i State Archives, the Hawaiian Mission Children's Society Library and Archives, the Hawai‘i Public Library, and the Bishop Museum Archives; study of historic photographs at the Hawai‘i State Archives and the Bishop Museum Archives; and study of historic maps at the Survey Office of the Department of Land and Natural Resources. Historic maps and photographs from the CSH library were also consulted. In addition, Māhele records were examined from the Waihona ‘Aina database (Waihona ‘Aina 2022). This research provided the environmental, cultural, historic, and archaeological background for the project area.
Background Research Summary	Waiākea is a large *ahupua‘a* (traditional land division) encompassing some 95,000 acres. The rich upland resources of taro and sweet potato and abundant marine resources, particularly shrimp and fish, made Waiākea very valuable to the Hawaiian people (Fornander 1916-1919; Kelly et al. 1981). According to Hawaiian folklore and legends, gods and goddesses including Pele, Hi‘iaka, and Pana‘ewa frequented Waiākea. Many legends have associated Waiākea with Hawaiian *ali‘i* (chief) since the sixteenth century and describe it as a gathering place for ceremonies (Emerson 1915; Fornander 1916-1919; Kamakau 1961; Noglemeier 2006; Thrum 1923). In 1979 Holly McEldowney prepared an archaeological and historical literature search and research design as part of a lava flow control study

for Hilo (McEldowney 1979). In her report, McEldowney describes five zones of land use and associated resources as observed during the early historic period. The project area, situated at approximately 33 ft amsl, falls within the lower limits of Zone II (Figure 6), the Upland Agricultural Zone, which was generally characterized by open grassland used for planting (McEldowney 1979:19–20). To some degree these grasslands in Hilo were likely formed by human activity such as swidden agriculture, which would have reduced over time the lowland *‘ōhi‘a* forest like that still present today in portions of Pana‘ewa (McEldowney 1979:21–24). According to Handy and Handy (1972:131–132), the Pana‘ewa forest did also contain house sites with associated planting areas. An 1851 map of Waiākea (Figure 7) depicts the project area within a broad, coastal “Hala Woods” situated *makai* of the “Panaewa Woods.” Thus, the project area was likely used for collection of natural resources, such as the prevalent *lauhala* (leaves of the *hala* plant) used for weaving, and for intermittent, small-scale agriculture, with the natural depressions in lava flows used for mulch-type agriculture.

The shift from a subsistence-based to a market-based economy began in the early 1800s following Western Contact with the Hawaiian Islands. This shift was precipitated by the sandalwood trade, arrival of whalers, introduction of imported food crops (Kelly et al. 1981). During this time Hilo was becoming an important port town. The establishment of the American Board of Commissioners for Foreign Missions (ABCFM) station in Hilo during this time also resulted in significant cultural changes (Kelly et al. 1981).

In the Māhele of 1848 Waiākea Ahupua‘a was held as Crown Land. When Kamehameha I died in 1819, his son Liholiho had received the lands. Two *‘ili kū* (subdivisions of an *ahupua‘a* which pay tribute to the district chief) were awarded to Victoria Kamāmalu, granddaughter of Kamehameha I and heir to Ka‘ahumanu, as part of Land Commission Award (LCA) 7713. These *‘ili kū* included Pi‘oipi‘o near Hilo Bay, and Honohononui, a long strip of land in Keaukaha located west of the project area which extended *mauka* to the vicinity of the road to Puna (see Figure 7). Hudson (1932:246) documented a portion of this trail in the vicinity of the present Keaukaha Military Reservation, calling it the “Puna-Kau Trail.”

According to the Māhele database (Waihona ‘Aina 2022), 28 LCA parcels were granted within Waiākea, most of which were focused around the edges of the large coastal fishponds to the west of the project area near Hilo Bay. Land use information from the *kuleana* or commoner awards generally refer to cultivated fields with house lots,

indicating habitation and agricultural production within the same zone. No LCA are indicated in proximity to the project area.

During the mid-nineteenth century, sugarcane plantation agriculture and ranching came to prominence in Waiākea Ahupua‘a. The Waiakea Sugar Plantation comprised large tracts of land in Hilo, west of Keaukaha, and other plantations and mills cropped up around the district. The Waiakea Plantation and Mill, as well as the road to Puna, are shown on an 1886 map of Hawai‘i Island (Figure 8). By the 1870s, the road to Puna was a functioning horse trail, likely fitting Apple’s (1965:65) Type C classification. Hudson (1932:246) described it as “about 4 feet wide, paved with bits of aa lava and flat stones, banked on the sides, and built up in crossing gullies.”

In 1879, a 3-mile railroad was constructed from Waiakea Mill to the cane fields, “the first in the ‘Sandwich Islands’ to haul sugar with a steam locomotive” (Condé and Best 1973:117). This railroad would be expanded substantially over the coming decades. Portions of the railroad and various plantation mills are illustrated on a 1901 map (Figure 9), which indicates little development in Keaukaha and the vicinity of the project area. Ranching was also primarily focused west of Keaukaha, in the portions of upland Waiākea too rocky for sugarcane. Land use in the project area vicinity likely continued to be focused on procurement of forest resources and small-scale intermittent, small-scale agriculture.

The 1900s brought the onset of urban development to the district of South Hilo. Several major construction projects were undertaken between 1900–1930, including new wharves and boat landings, bridges, the Hilo breakwater, and the Waiolama dredge-and-fill project near the bay (Kelly et al. 1981:287–291). A 1914 map (Figure 10) shows an expansion of the railroad to the new wharf at Kūhi‘ō Bay (completed in 1913) near the new Hilo Breakwater, northwest of the project area. Figure 10 also depicts the Puna Trail passing south of the project area, an unlabeled trail west of the project area that intersected the Puna Trail, and another unlabeled trail north of the project area that connected with the trail to the west.

In 1914 the Governor of the Territory of Hawaii set aside 216.43 acres of land in Waiākea for a National Guard of Hawaii rifle range. A 1915 map (Figure 11) depicts the new rifle range in the vicinity of the present Keaukaha Military Reservation, west of the project area. By 1927, the military reservation had expanded to nearly 1,000 acres (Wheeler et al. 2014:37). Figure 11 also shows other recent developments including the Hilo Breakwater, wharves, expanded Hilo Railroad, and Waiākea House Lots in relation to the project area and the *‘ili kū* of Honohononui.

	The Keaukaha Hawaiian Homestead settlement was also developed in the 1920s. The settlement, depicted northwest of the project area in Figure 12, was the second established in the state under the Hawaiian Homes Commission Act and was described as “an unqualified success” (Kelly et al. 1981:229). By 1931 more than 200 house lots were occupied by a population of over 1,200 (Kelly et al. 1981:233). Development of the Hilo Airport, adjacent to the Keaukaha Homestead, also began in the 1920s (Kelly et al. 1981:230). The onset of World War II resulted in expansion and designation of Hilo airport as General Lyman Field by the U.S. military. This and subsequent airport expansions adversely affected the adjacent Keaukaha homestead community, displacing many lessees (Kelly et al. 1981:234–235). Also during this time period, the April 1946 tsunami caused extensive damage and loss of life in Hilo (Kelly et al. 1981:291). The road into Keaukaha was washed out, and the breakwater and piers at the Kūhi‘ō wharf were also damaged. Following Statehood in 1959 and the decline of the sugar industry, tourism became an economic mainstay for the Hilo area. Another tsunami in 1960 caused great damage throughout Hilo, and subsequently portions of the town were reorganized to minimize devastation from future tsunami (Clark 1985:16). A 1963 topographic map (Figure 13) depicts the continued development in the vicinity of the project area. In 1967 a sewage treatment plant was constructed at Puhi Bay, at the coast fronting the Keaukaha homesteads (Kelly et al. 1981:248, 292). This treatment plant is visible on a 1977 orthophoto (Figure 14). In 1989, General Lyman Field was renamed as Hilo International Airport. The airport is in the process of being modernized through a variety of projects. In 1994 a new Hilo wastewater treatment plant was completed southeast of the airport at its current location. The treated effluent is gravity fed to the ocean outfall located at Puhi Bay. The old sewage plant site at Puhi Bay contains a wastewater pump station and an aquaculture research and training center. The Keaukaha Military Reservation continues to be utilized by the Hawaii National Guard.
Prior Archaeological Studies Summary	Six previous archaeological studies have been identified within 1.5 kilometers (km) (0.9 miles) of the current project area. These studies are depicted in relation to the project area in Figure 15 and summarized in Table 1. Of these studies, only one (Rosendahl 1988) overlaps the current project area. No historic properties have been previously documented within 1 km of the current project area. Paul H. Rosendahl, Inc. (PHRI) in 1988 conducted an archaeological reconnaissance survey for an environmental impact statement (EIS) for the proposed Hilo Wastewater Treatment Plant project (Rosendahl

	1988; see Figure 15). No archaeological features were identified during the reconnaissance and no additional archaeological work was recommended.
Fieldwork Effort and Findings	The various components of the project area were inspected over three separate days: 12 July 2022, 7 October 2022, and 31 January 2023. Fieldwork was conducted by CSH Project Directors Olivier M. Bautista, B.A., and Sarah Wilkinson, B.A., under the general supervision of Principal Investigator Hallett H. Hammatt, Ph.D. The field inspection generally consisted of a 100% pedestrian coverage of the project area. Photographs were taken of the general project area, as well as each of the Phase 1, Phase 2, and Future improvement locations shown on Figure 4. A Garmin 60CSx handheld GPS device was carried by the crew to identify the boundaries of the project area and to record any points of interest. The field inspection effort confirmed the entire project area—comprising the entire 14.899-acre WWTP site—has been subjected to extensive prior disturbance related to the development of the existing treatment plant. All areas within the WWTP property boundary—both inside and outside the facility’s security fence—have been graded and subjected to variable levels of additional development, completely altering the natural terrain. Representative photographs (Figure 16 through Figure 28) depict the built environment within the fenced plant facility. All but three of the planned improvements are within this portion of the project area, which consists of existing modern buildings and structures, open gravel areas, parking areas, and driveways. The perimeter between the plant security fence and the property boundary is generally maintained, open grassy areas that have been used for stockpiling and staging (Figure 29 through Figure 32). A gravel roadway located along the western property boundary within the perimeter area accesses lands north of the project area (Figure 33). A portion of the area to the north of the security fence has not been used or maintained in recent years, and now contains a dense canopy of invasive vegetation. Clear signs of prior grading and disturbance were observed throughout the limits of this forested area (Figure 34 and Figure 35). No archaeological features representing potential historic properties were encountered in any portion of the project area.
Potential for Project Effect on Historic Properties	Background research and the results of the field inspection indicate an absence of known or potential historic properties within the project area.

Recommendations	Based on the absence of any surface archaeological features in the project area and the extent of prior ground disturbance, further archaeological study is not recommended for the Hilo Wastewater Treatment Plant Improvements Projects. Consultation with the SHPD should be sought for concurrence with this recommendation, and to obtain any further determinations of historic preservation requirements for the project.

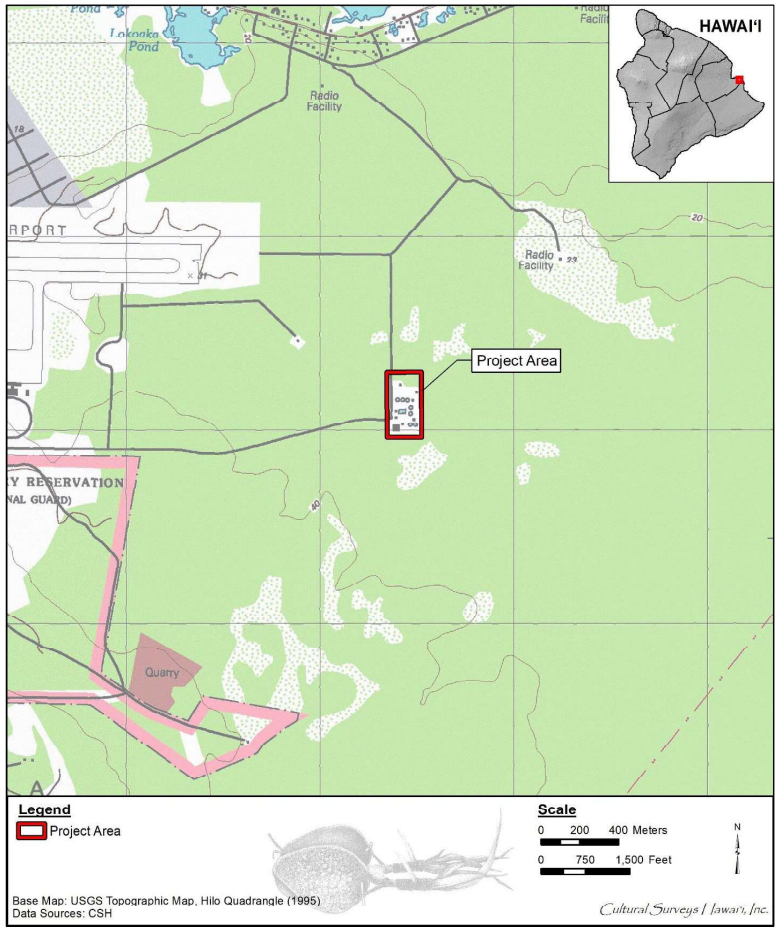

Figure 1. Portion of the 1995 Hilo USGS 7.5-minute topographic quadrangle showing the project area in relation to landmarks such as the airport runway, rock quarry, radio facilities, and the coastline to the north

Figure 3. Aerial photograph (ESRI 2021) showing the project area

Figure 2. Tax Map Key (TMK) (3) 2-1-013 showing the project area at the existing WWTP in a portion of parcel 002 (Hawai'i TMK Service 2010)

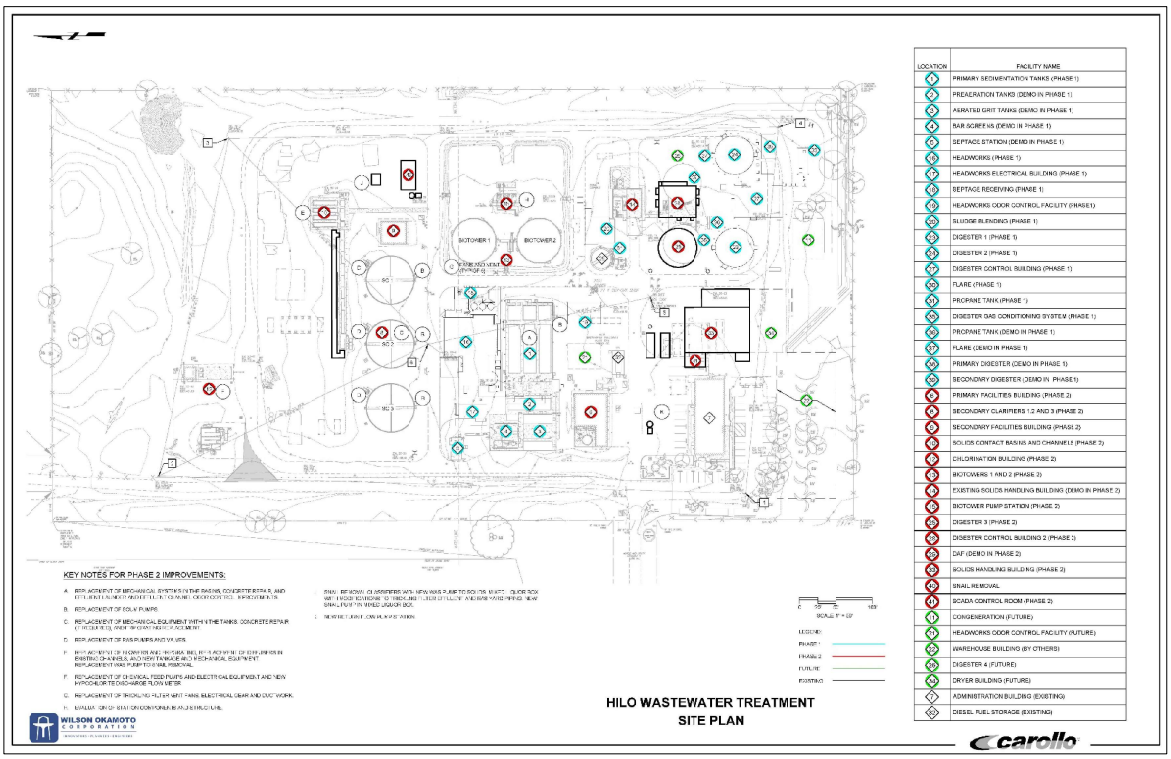

Figure 4. Conceptual site plan showing various Phase 1, Phase 2, and Future improvements in relation to existing facilities (courtesy of client)

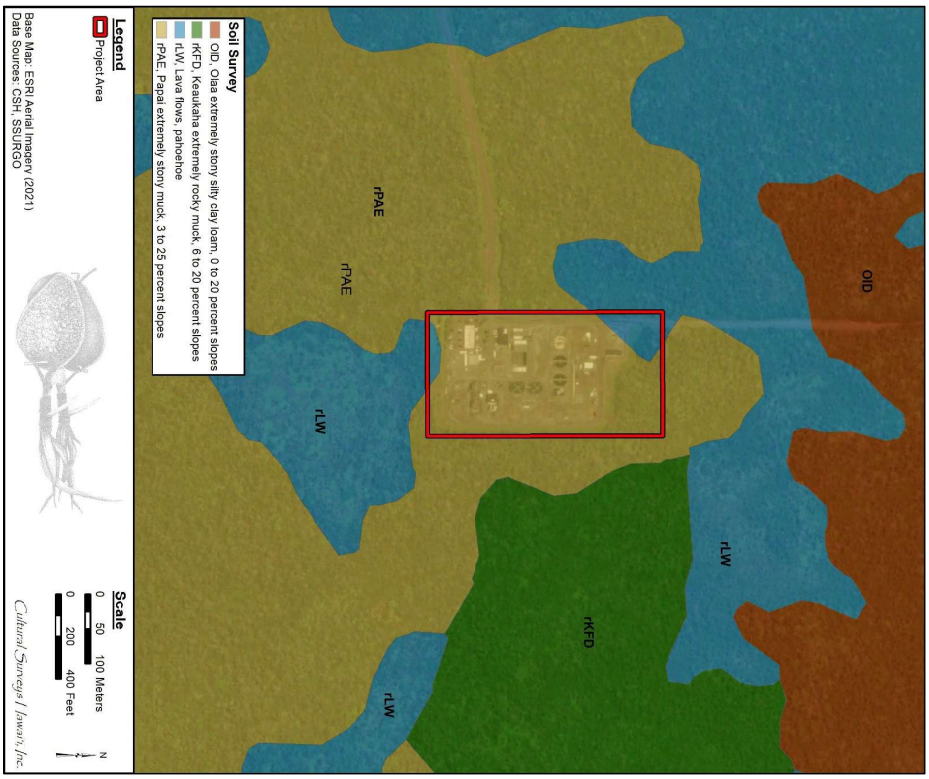

Figure 5. Overlay of *Soil Survey of the Island of Hawaii* (Sato et al. 1973), indicating soil and land types within project area (USDA SSURGO 2001)

Figure 6. Map showing Zones of Early Historic-Period Land Use as described by McEldowney (1979:64)

Figure 7. Portion of the 1851 Webster Plan of Waiakea, showing the location of the project area (in red) within the "Hala Woods," *makai* of the "Road to Puna" and "Panaewa woods," and east of the *'ili kū* of "Honohononui"

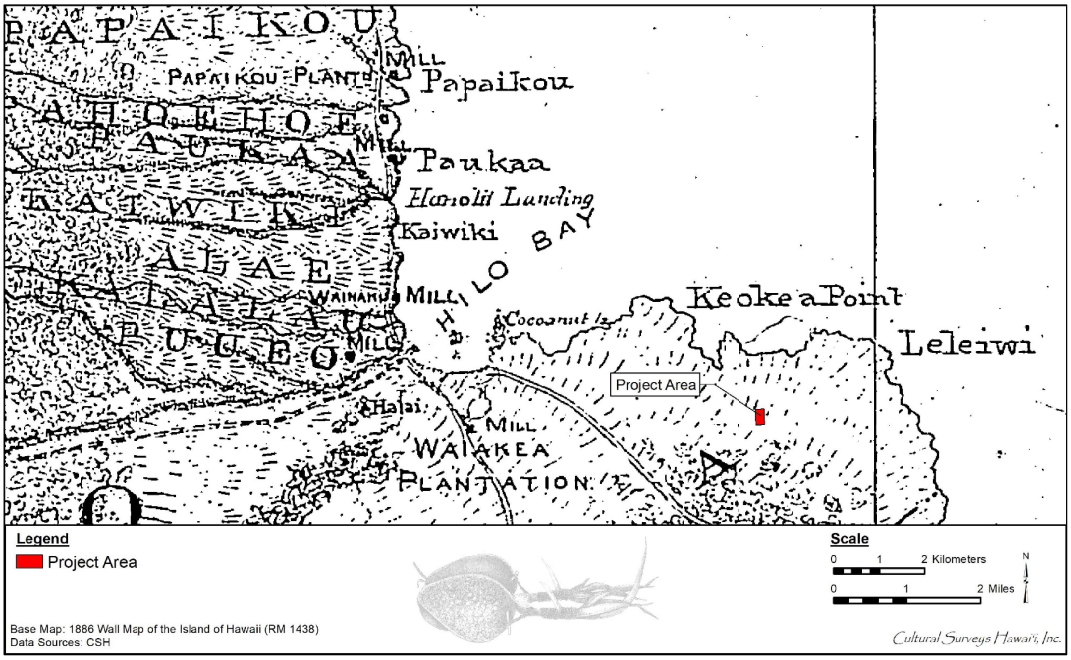

Figure 8. Portion of 1886 Wall map of the Island of Hawai'i showing the project area

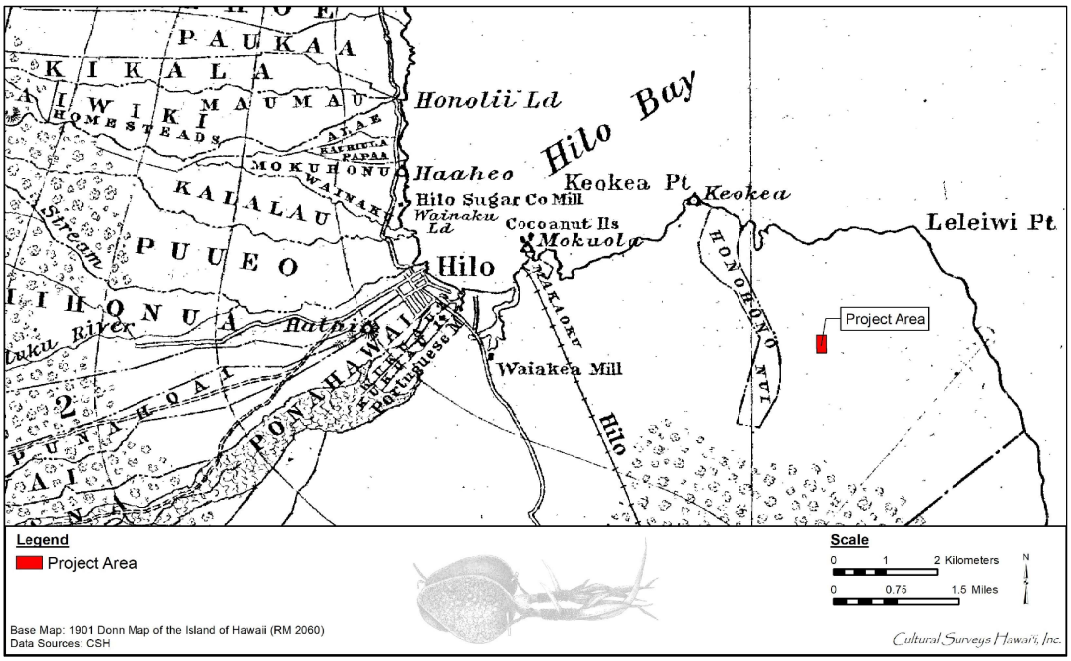

Figure 9. Portion of 1901 Donn map of the Island of Hawai'i showing the project area in relation to the Waiakea Mill, Hilo Railroad, and other developments

Figure 10. Portion of the 1914 Waiakea USGS 7.5-minute topographic quadrangle showing the project area in relation to the Waiakea Mill, Hilo Railroad, and the Puna Trail

Figure 11. Portion of the 1915 Wall map of Waiakea Government Tract showing the project area in proximity to developments including the National Guard of Hawaii Rifle Range, Hilo Breakwater, wharves, Hilo Railroad, and Waiākea House Lots

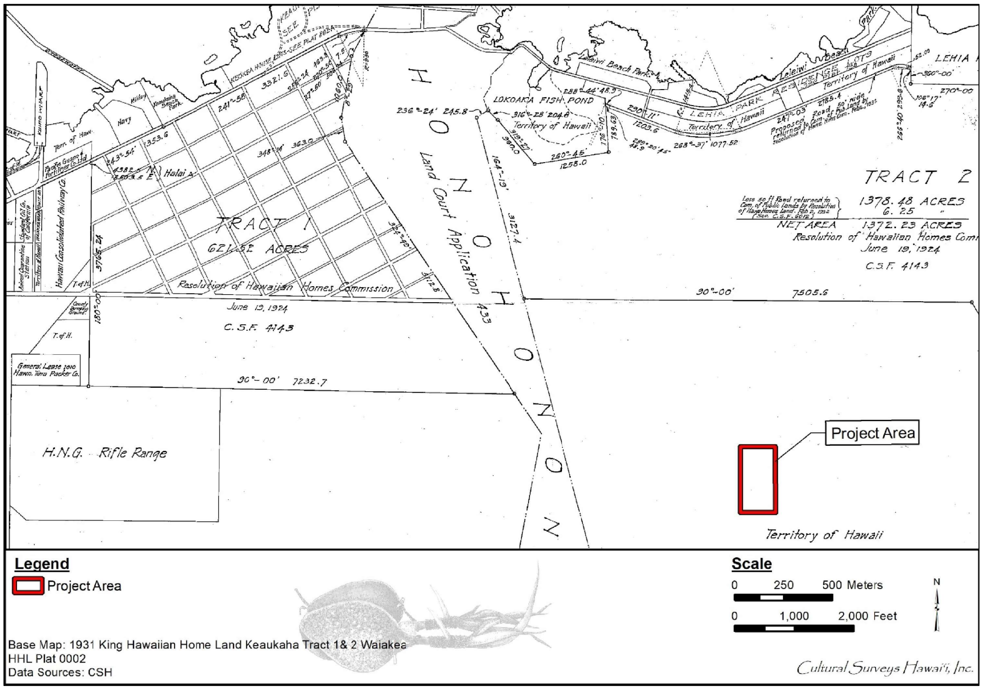

Figure 12. 1931 King map of Hawaiian Homeland Keaukaha Tract showing the location of the project area

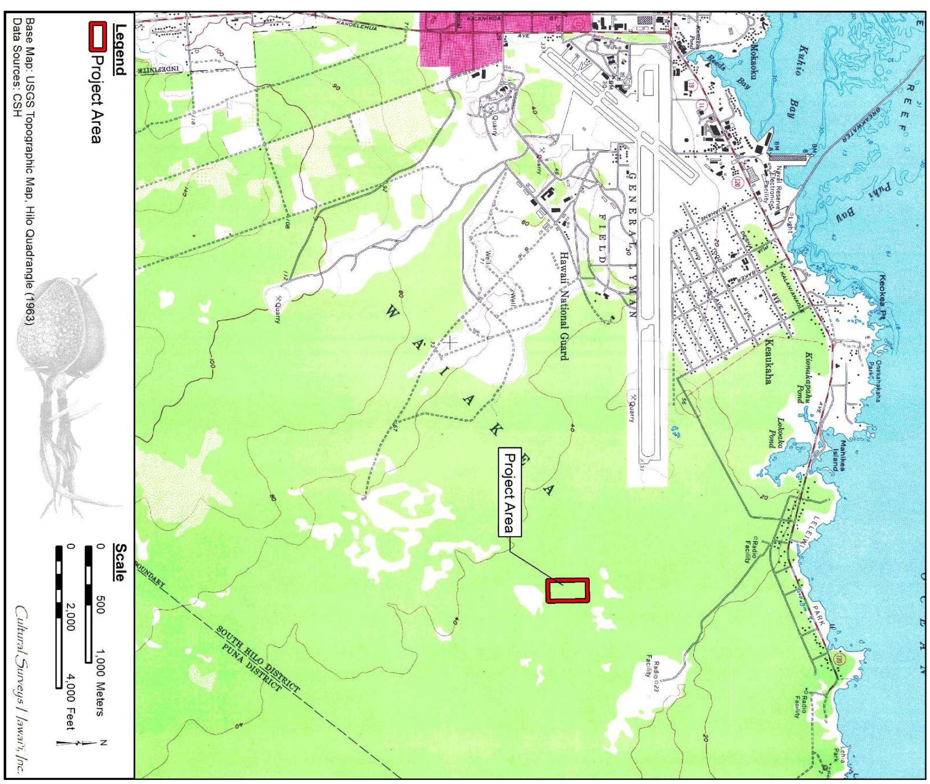

Figure 13. Portion of the 1963 Hilo USGS 7.5-minute topographic quadrangle showing continued development in the vicinity of the project area

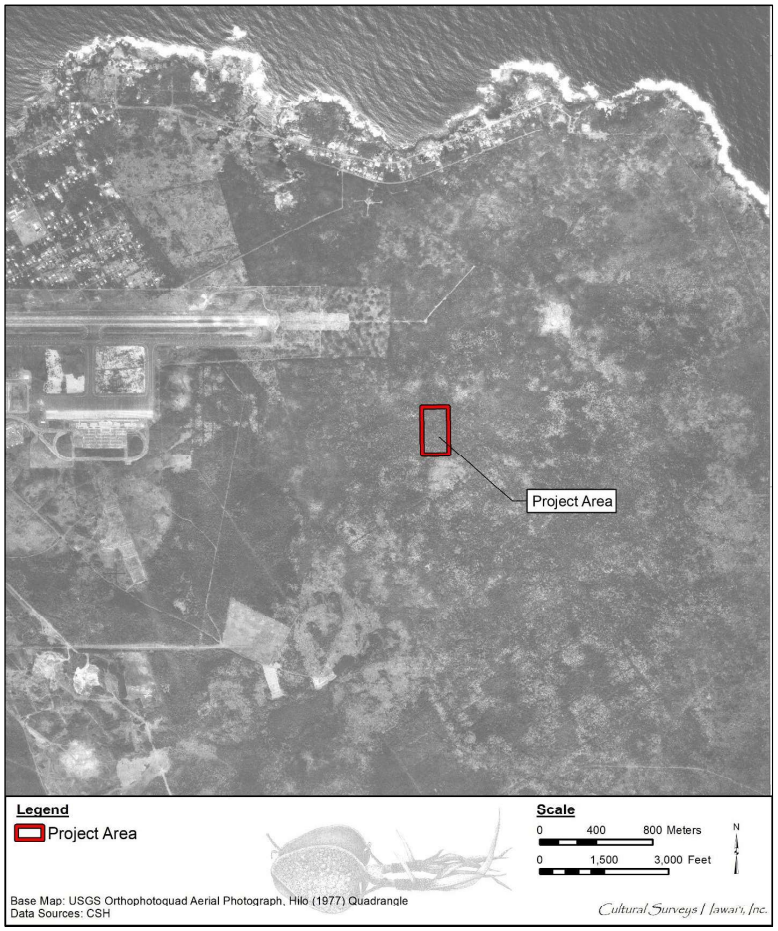

Figure 14. 1977 USGS Orthophoto showing continued development in the vicinity of the project area

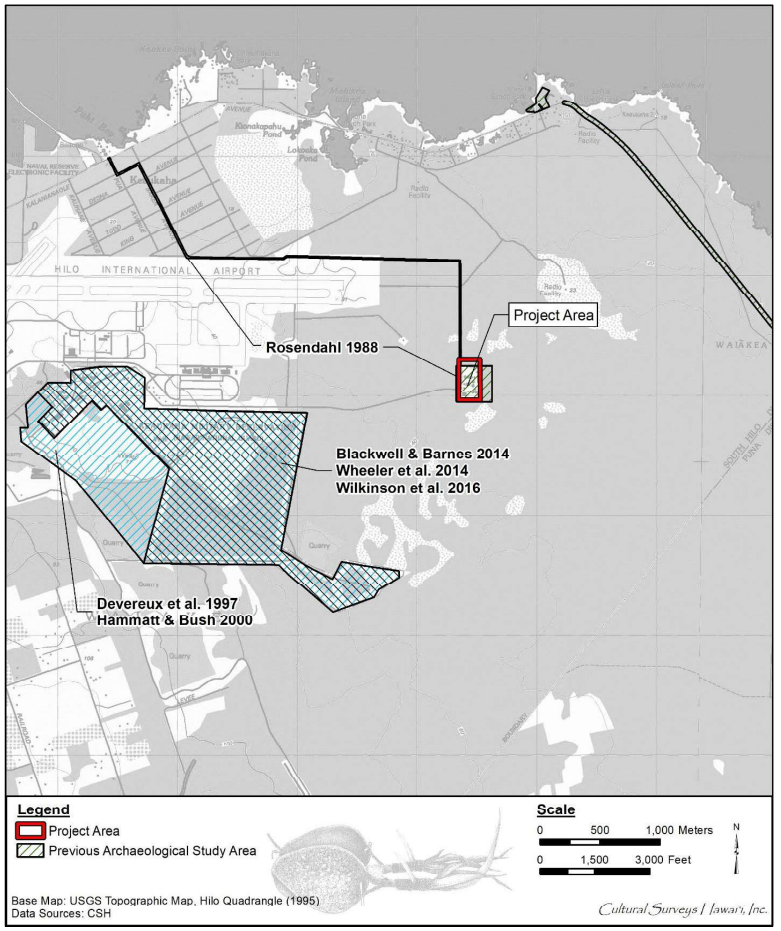

Figure 15. 1995 Hilo USGS topographic quadrangle showing the approximate locations of previous archaeological studies situated within 1.5 km of the project area; note previous studies located beyond this distance not shown

Table 1. Previous archaeological studies located within 1.5 km of the project area

Reference	Type of Study	Location	Results (SIHP # 50-10-35)
Rosendahl 1988	Archaeological reconnaissance survey	Hilo Wastewater Treatment Facility (included an associated sewer line corridor extending 3,810 m to old plant site at Puhi Bay), Waiākea, TMKs: (3) 2-1-013:012, 013, 020, and 022 por.	No historic properties identified
Devereux et al. 1997	Archaeological reconnaissance survey	503.6 acres at Hawaii Army National Guard Keaukaha Military Reservation, Waiākea, TMKs: (3) 2-1-012:003 and 2-1-013:010	Documented two sites, not assigned SIHP numbers, located over 1.5 km from current project area: CSH-1 (C-shape enclosure) and CSH-2 (coral mound); see Hammatt and Bush 2000 and Wheeler et al. 2014
Hammatt and Bush 2000	Archaeological inventory survey	503.6 acres at Hawaii Army National Guard Keaukaha Military Reservation, Waiākea, TMKs: (3) 2-1-012:003 and 2-1-013:010	Documented four historic properties, all located over 1.5 km from current project area: SIHP #s -18869 (Puna Trail), -21657 (military C-shape initially identified by Devereux et al. 1997), -21658 (five *ahu* or cairns), and -21659 (modified blister); deaccessioned coral mound documented by Devereux et al. 1997
Blackwell and Barnes 2014	Historic building survey and evaluation report	Six Hawaii Army National Guard Facilities Statewide, including Keaukaha Military Reservation, Waiākea, TMKs: (3) 2-1-012:003, 131, and 2-1-013:010	Documented ten buildings and four ranges, of which all but one are historic in age; all of the buildings and ranges recommended not eligible for listing on the National Register of Historic Places (NRHP); all buildings and ranges located over 1.5 km from current project area

Reference	Type of Study	Location	Results (SIHP # 50-10-35)
Wheeler et al. 2014	Phase I (surface) archaeological inventory survey and monitoring plan	Hawaii Army National Guard Keaukaha Military Reservation, Waiākea, TMKs: (3) 2-1-012:003, 131, and 2-1-013:010	Documented five previously identified historic properties (SIHP #s -18869, Puna Trail; -21657, military C-shaped enclosure; -21658, mound complex; -21771, complex; -23273, trail and agricultural complex); and six newly identified historic properties (SIHP #s -30008, lava tube shelter; -30009, modified outcrop complex; -30010, historic complex; -30011, historic complex; -30012, historic trail; and -30038, trail segment associated with Puna Trail); all sites located over 1.5 km from current project area
Wilkinson et al. 2016	Phase II (subsurface) archaeological inventory survey	Hawaii Army National Guard Keaukaha Military Reservation, Waiākea Ahupua‘a, TMKs: (3) 2-1-012:003 and 2-1-013:010	Documented three previously identified historic properties (SIHP #s -21771, -30008 and -30010) and two newly identified historic properties (SIHP #s -30216, historic terrace; and -30217, agricultural complex); all sites located over 1.5 km from current project area

Figure 16. Photo overlooking the Hilo WWTP from the parking lot at the fenced plant entrance; view to east

Figure 17. Photo overlooking the Hilo WWTP from the existing digester control building; view to northwest

Figure 18. Photo overlooking the northeastern portion of the Hilo WWTP, where Phase 2 improvements are planned; view to north

Figure 19. Photo overlooking existing basins in the northeastern corner of the Hilo WWTP, where a Phase 2 improvement is planned; view to northwest

Figure 20. Photo overlooking the northwest portion of the Hilo WWTP, where Phase 1 and Phase 2 improvements are planned; view to north

Figure 21. Photo overlooking the northwestern corner of the Hilo WWTP, where a Phase 2 improvement is planned at the tan-colored structure visible at center of photo; view to northwest

Figure 22. Photo overlooking the central-eastern portion of the Hilo WWTP, where several Phase 1, Phase 2, and Future improvements are planned; view to north

Figure 23. Photo overlooking the central-western portion of the Hilo WWTP, where several Phase 1 improvements are planned; view to southwest

Figure 24. Photo overlooking existing sedimentation tanks in the central-western portion of the Hilo WWTP, where Phase 1 improvements are planned; view to west

Figure 25. Photo overlooking the central-western portion of the Hilo WWTP, where Phase 1, Phase 2, and Future improvements are planned; view to west

Figure 26. Photo overlooking an existing facilities building near the plant entrance, where a Phase 2 improvement is planned; view to south

Figure 27. Photo overlooking the southwestern portion of the Hilo WWTP, where several Phase 1, Phase 2, and Future improvements are planned; view to east

Figure 28. Photo overlooking the southwest corner of the Hilo WWTP, where several Phase 1, Phase 2, and Future improvements are planned; view to west

Figure 29. Photo overlooking the open, graded perimeter area in the southwest corner of the property outside the plant security fence, where a future warehouse building is planned; view to south

Figure 30. Photo overlooking the open, graded perimeter area immediately south of the plant security fence, where a Phase 1 flare and Future cogeneration facility are planned; view to west

Figure 31. Photo overlooking the open, graded perimeter area immediately east of the plant security fence; view to south

Figure 32. Photo overlooking the open, graded perimeter area immediately north of the plant security fence, note area of dense invasive forest to right; view to west

Figure 33. Photo overlooking the gravel roadway and adjacent graded areas located along the northwestern boundary of the plant property; view to south

Figure 34. Photo showing extensive prior ground disturbance in the invasive forest at the northeastern corner of the plant property (survey marker with pink flagging visible at center); view to northeast

Figure 35. Photo showing graded and leveled terrain within the area of dense invasive forest north of the plant security fence; view to southwest

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APPENDIX D

Section 106 Consultation
State Historic Preservation Division

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAII
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

April 18, 2023 62-53 & 62-54 S106 ltr (initial) SHPD.docx

Alan S. Downer, PhD, Administrator
State of Hawai'i, Department of Land and Natural Resources
State Historic Preservation Division
601 Kamokila Boulevard, Rm. 555
Kapolei, HI 96707
Submitted via: SHPD HICRIS

Dear Dr. Downer:

Subject: National Historic Preservation Act (NHPA)
Request to Initiate Section 106 Consultation
Hilo WWTP Rehabilitation and Replacement Project – Phase I and Phase II
Clean Water State Revolving Fund Project No. C150062-53 and C150062-54
Waiākea Ahupua'a, South Hilo District, Hawai'i Island
TMK: (3) 2-10-013:002 por.
State Historic Preservation Division (SHPD) Project No. 2023PR00356

On behalf of the Environmental Protection Agency (EPA), the State of Hawai'i Department of Health (DOH) requests to initiate Section 106 consultation with the State Historic Preservation Officer (SHPO) for the proposed Hilo WWTP Rehabilitation and Replacement Project – Phase I and Phase II projects located in Waiākea Ahupua'a, South Hilo District, Hawai'i Island.

The proposed projects may be eligible to utilize federal funding that is administered by the DOH through the Clean Water State Revolving Fund (CWSRF) and will be considered a federal action and undertaking, as defined by Section 106 of the NHPA of 1966 (as amended 2014), Title 54 of the United States Code (54 USC) Section 306108, and Title 36 of the Code of Federal Regulations (36 CFR) Part 800.

The EPA has authorized the DOH to act on behalf of the EPA regarding NHPA Section 106 notification and consultation. This letter is to request to initiate the Section 106 consultation process with the SHPO and State Historic Preservation Division (SHPD) in accordance with 36 CFR, Section 800.3.

The DOH may provide funding under the CWSRF to the County of Hawai'i, Department of Environmental Management (DEM) for the Hilo WWTP Rehabilitation and Replacement Project – Phase I and Phase II projects.

Project Description

The existing Hilo WWTP is located within a relatively undeveloped area of South Hilo on Kekuanaoa Place approximately 4,115 feet (about 0.78 mile) southeast of Runway 26 on Hilo

International Airport, within TMK: (3) 1-2-013:002, a 2,407.756-acre parcel owned by the State of Hawai'i (*See Attachment A*). The plant was constructed by the County in the early 1990s and, since then, has been operated by the County of Hawai'i Department of Environmental Management (COH-DEM). During the construction of the Hilo WWTP, an area of 14.899 acres assigned to the County was cleared of vegetation and graded for construction. The developed facilities of the WWTP occupy an area of about 8.4 acres within the 14.899-acre area. The adjacent areas immediately surrounding existing plant facilities lie to the south, east, and north of the 8.4-acre developed area. These cleared areas have largely remained undeveloped and have served as laydown and staging areas for WWTP maintenance and operations. The nearest residential area lies across the runway and over one (1) mile to the north of the WWTP. The relatively flat terrain, intervening vegetation, and the distance provide a visual buffer between the residential area and the WWTP.

In response to these condition assessments, the COH-DEM is proposing to undertake replacement and related improvements to critical facilities and then subsequently construct other new facilities to improve the treatment processes at the WWTP. These replacement facilities and subsequent improvements will be implemented in phases. The replacement facilities are sited nearby or adjacent to the ones being replaced within the existing developed area of the WWTP and within areas previously cleared adjacent areas to the south and east of the plant. Both the proposed replacement and new facilities are needed to ensure continued current operations and to meet future needs at the WWTP. In addition, facilities will be developed to meet current code requirements and to ensure the long-term operation of the plant functions.

Phase 1 of the subject project consists of the replacement of critical core functions and facilities within the 8.4-acre developed area at the WWTP or within the adjacent previously cleared areas, including the following:

- Replacement of the headworks, including associated improvements (septage receiving facility, headworks electrical building, and the odor control system);
- Replacement of two anaerobic digesters, including associated improvements (sludge blending tanks with odor control facilities, digester control building, digester gas conditioning system, and waste gas flare; and
- Demolition of the existing headworks and digester facilities upon completion of the replacement facilities.

See *Attachment B* for site plans.

As previously stated, the replacement facilities and associated improvements are sited nearby or adjacent to the facilities being replaced in areas that were cleared of vegetation during the construction of WWTP.

Subsequent Phases (identified as “Phase 2” and “Future”) of the proposed project consist of:

- Facilities to upgrade and improve treatment processes with resultant improvement to the quality of the effluent,
- Facilities for odor control, and
- Facilities to improve overall operations of the WWTP. These improvements encompass a variety of improved or new plant components affecting secondary treatment, solids

handling, warehousing, storage and maintenance functions, and operational control facilities.

Similarly, these project-related ground disturbances would include excavation and grading within the developed area of the plant site for the installation of new equipment, structures, buildings, and associated utilities.

Area of Potential Effect (APE)

The APE for the Hilo WWTP Rehabilitation and Replacement Projects comprises an approximately 14.9-acre (6.03-hectare) portion of 2,407.756-acre (974.384-hectare) parcel TMK: (3) 1-2-013:002, which is owned by the State of Hawai'i. The APE is depicted on a portion of the 1995 Hilo U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle on Hawai'i Island, tax map plat, and an aerial photograph (*See Attachment A*). All project staging will be confined within the APE limits shown in *Attachment A*.

Archaeological Background

Numerous past archaeological studies have been conducted in the vicinity of the Hilo WWTP Rehabilitation and Replacement Projects APE; however, only one of these prior studies overlaps the APE (Rosendahl 1988; *Attachment C*). In 1988 Paul H. Rosendahl, Inc. (PHRI) conducted an archaeological reconnaissance survey for an environmental impact statement (EIS) for a proposed Hilo Wastewater Treatment Plant project (Rosendahl 1988). No archaeological features were identified during the archaeological reconnaissance and no additional archaeological work was recommended.

Recently Cultural Surveys Hawai'i, Inc. (CSH) completed a literature review and field inspection (LRFI) for the current undertaking (Wilkinson et al. 2023) for inclusion in the project's Draft EA *(See Attachment D)*. The LRFI was designed to determine the likelihood that historic properties may be affected by the project and, based on findings, consider cultural resource management recommendations to facilitate project planning and support the project's historic preservation and environmental review compliance.

The Wilkinson et al. (2023) literature review component identified no previously identified historic properties within the APE, and no archaeological historic properties were identified during the field inspection component. Evidence of prior ground disturbance was observed throughout the entire 14.899-acre APE. Based on these findings of the LRFI, an archaeological inventory survey was not recommended.

Consultations

Section 106 consultation letters have also been sent to Native Hawaiian organizations, consulting parties, and/or interested persons that might attach significance to this area and have invited them to participate in the process. The mailing list is provided in *Attachment E*.

We welcome any comments that you may have on this project's proposed improvements.

We are particularly interested in any information you may have on the historic and cultural sites that have been recorded in the area. In addition, if you are acquainted with any persons or

organizations that are knowledgeable about the proposed project area or any descendants with ancestral, lineal, or cultural ties to, cultural knowledge or concerns for, and/or cultural or religious attachment to the proposed project area, then we would appreciate receiving their names and contact information.

We would appreciate a written response within thirty (30) calendar days from receipt of this letter. Please address any written comments to email: Chane.Hayashida@doh.hawaii.gov or the following address:

Attn: Chane Hayashida
Department of Health, Wastewater Branch
2827 Waimano Home Road, Room 207
Pearl City, HI 96782

Should you have any questions, please contact Chane Hayashida at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

Attachments

CH:

c: Ramzi Mansour (via email at Ramzi.Mansour@hawaiicounty.gov)
Eric Takamura (via email at Eric.Takamura@hawaiicounty.gov)
Mark Grant (via email at MarkJ.Grant@hawaiicounty.gov)

References Cited

ESRI

2022 World Imagery. Esri, Redlands, California. Available online at www.arcgisonline.com/maps/World_Imagery.

Hawai'i TMK Service

2010 Tax Map Keys [3] 2-1-011 and 2-1-013. Hawai'i TMK Service, Honolulu

Rosendahl, Margaret L.K.

1988 *Archaeological Reconnaissance Survey for Environmental Impact Statement (EIS) Hilo Wastewater Treatment Facility Site, Land of Waiakea, District of South Hilo, Island of Hawaii (TMK:2-1-13:Por.12,13,20,22).* Paul H. Rosendahl, Ph.D., Inc., Hilo, Hawai'i.

USGS (U.S. Geological Survey)

1994 Keaau Ranch USGS 7.5-minute topographic quadrangle. USGS Information Services, Denver, Colorado.

1995 Hilo USGS 7.5-minute topographic quadrangle. USGS Information Services, Denver, Colorado.

Wilkinson, Sarah, Olivier M. Bautista, and Hallett H. Hammatt

2023 *Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Improvements Projects, Waiākea Ahupua'a, South Hilo District, Hawai'i Island, TMK: (3) 2-10-013:002 por.* Cultural Surveys Hawai'i, Inc., Kailua, Hawai'i.

Attachment A

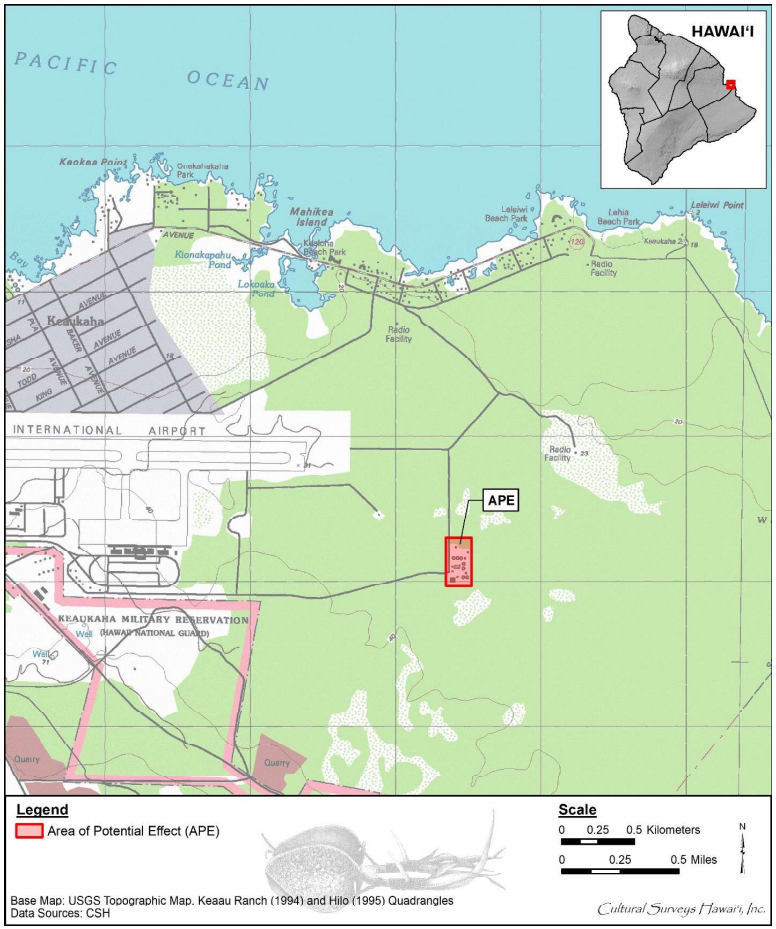

Figure 1. Portion of the 1994 Keaau Ranch and 1995 Hilo USGS 7.5-minute topographic quadrangles showing the location of the Area of Potential Effect (APE)

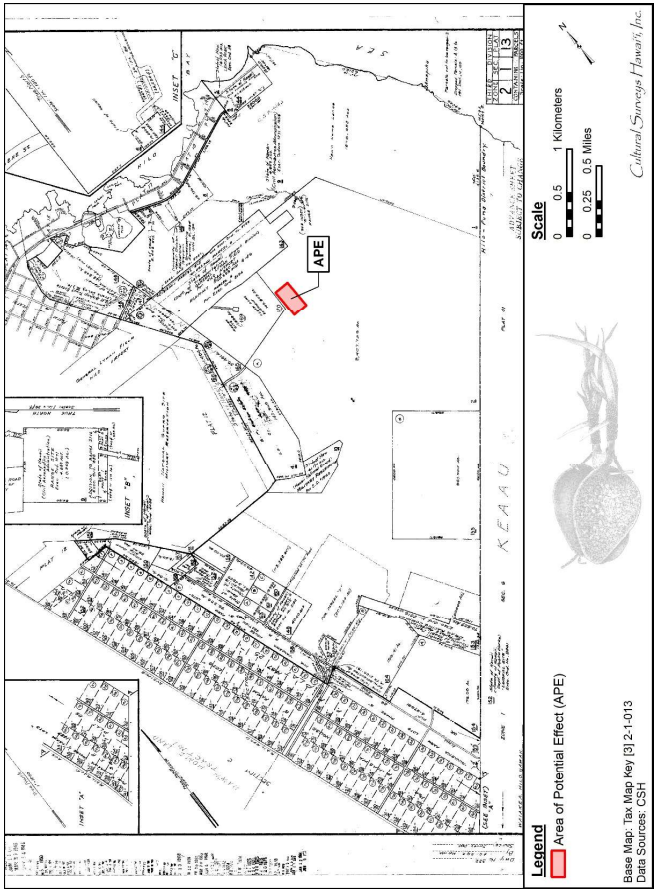

Figure 2. Tax Map Key (TMK) [3] 2-1-013 showing the APE within a portion of parcel 002 (Hawai'i TMK Service 2010)

Figure 3. Aerial imagery (ESRI 2022) showing the location of the APE

Attachment B

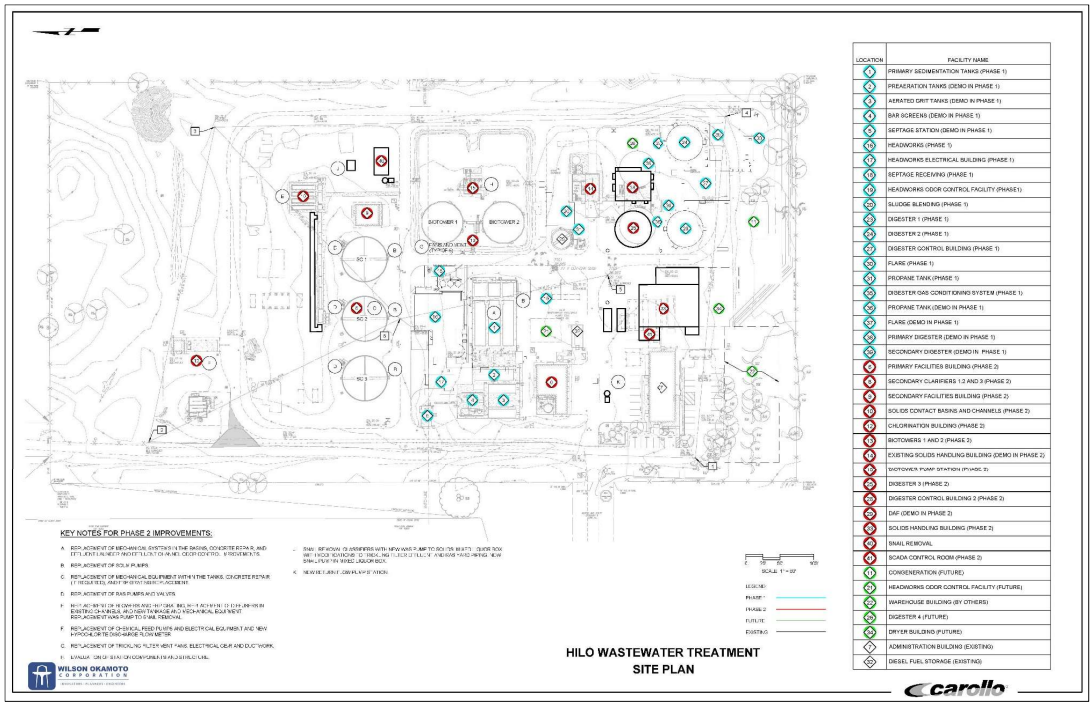

Figure 4. Site Plan showing various Phase 1, Phase 2, and Future improvements in relation to existing facilities

Attachment C

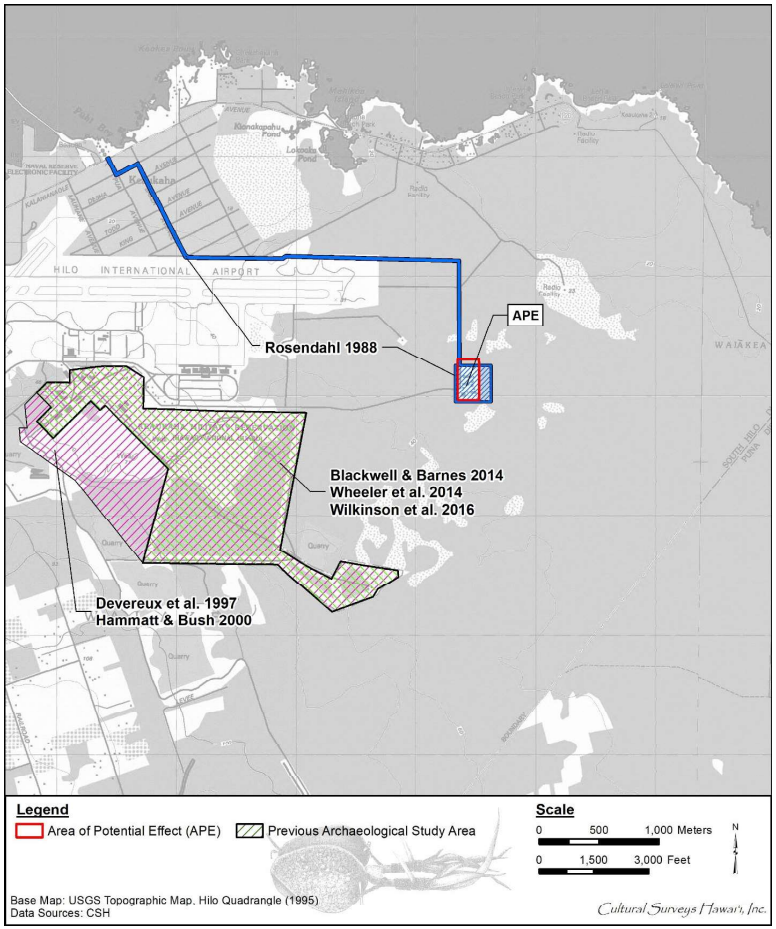

Figure 5. Portion of 1995 Hilo USGS topographic quadrangle showing the location of previous archaeological studies within 1.5 km of the APE; note, previous studies located beyond this distance not shown

Attachment D

Draft
Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Improvements Projects, Waiākea Ahupua‘a, South Hilo District, Hawai‘i Island TMK: (3) 2-1-013:002 por.

Prepared for
Wilson Okamoto Corporation
on behalf of the
County of Hawai‘i, Department of Environmental Management (DEM)

Prepared by
Sarah Wilkinson, B.A.,
Olivier M. Bautista, B.A.,
and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai‘i, Inc.
Kailua, Hawai‘i
(Job Code: WAIAKEA 36)

March 2023

O‘ahu Office
P.O. Box 1114
Kailua, Hawai‘i 96734
Ph.: (808) 262-9972
Fax: (808) 262-4950

www.culturalsurveys.com

Hawai‘i Office
399 Hualani St. #124
Hilo, Hawai‘i 96720
Ph.: (808) 965-6478
Fax: (808) 965-6582

Reference	Archaeological Literature Review and Field Inspection for the Hilo Wastewater Treatment Plant Improvements Projects, Waiākea Ahupua‘a, South Hilo District, Hawai‘i Island, TMK: (3) 2-10-013:002 por. (Wilkinson et al. 2023)
Date	March 2023
Project Numbers	Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: WAIAKEA 36 Clean Water State Revolving Fund (CWSRF) Project Numbers: C150062-53 (Rehabilitation and Replacement Phase 1) and C150062-54 (Rehabilitation and Replacement Phase 2)
Investigation Permit Number	CSH completed the field inspection under archaeological fieldwork permit numbers 22-02 and 23-30, issued by the Hawai‘i State Historic Preservation Division (SHPD) per Hawai‘i Administrative Rules (HAR) §13-282.
Land Jurisdiction	State
Agencies	Hawai‘i State Department of Health (DOH); SHPD; County of Hawai‘i, Department of Environmental Management (DEM)
Project Funding	State of Hawai‘i (revolving fund); County of Hawai‘i
Project Proponent and Contact	County of Hawai‘i DEM Ramzi Mansour, Director 345 Kekuanaoa Street, Suite 41 Hilo, HI 96720 Attention: Dora Beck Email: cohdem@hawaiicounty.gov
Planning Consultant for the Project	John Sakaguchi AICP, Vice President & Director Wilson Okamoto Corporation 1907 South Beretania Street, Suite 400 Honolulu, HI 96826 Office: (808) 946-2277 Fax: (808) 946-2253 Email: jsakaguchi@wilsonokamoto.com
Project Location	The project area is located in the town of Hilo on the windward side of Hawai‘i Island. The project area comprises the county’s existing Hilo Wastewater Treatment Plant (WWTP) property, which is located at the eastern end of Kekuanaoa Place approximately 4,115 feet (about 0.78 mile) southeast of Runway 26 on Hilo International Airport. The project area is shown on a portion of the 1995 Hilo U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle on Hawai‘i Island (Figure 1), a tax map plat (Figure 2), and a 2021 aerial photograph (Figure 3).

Project Description and Related Ground Disturbance	The existing Hilo WWTP was constructed by the County in the early 1990s and, since then, has been operated the County of Hawai‘i Department of Environmental Management (COH-DEM). During construction of the Hilo WWTP, an area of 14.899 acres assigned to the County was cleared of vegetation and graded for construction. The developed facilities of the WWTP occupy an area of about 8.4 acres within the 14.899-acre area. The adjacent areas immediately surrounding existing plant facilities lie to the south, east and north of the 8.4-acre developed area. These cleared areas have largely remained undeveloped and have served as laydown and staging areas for WWTP maintenance and operations. The nearest residential area lies across the runway and over one (1) mile to the north of the WWTP. The relatively flat terrain, intervening vegetation and the distance provide a visual buffer between the residential area and the WWTP. In response to these condition assessments, the COH-DEM is proposing to undertake replacement and related improvements to critical facilities and then subsequently construct other new facilities to improve the treatment processes at the WWTP. These replacement facilities and subsequent improvements will be implemented in phases. The replacement facilities are sited nearby or adjacent to the ones being replaced within the existing developed area of the WWTP and within areas previously cleared adjacent areas to the south and east of the plant. Both the proposed replacement and new facilities are needed to ensure continued current operations and to meet future needs at the WWTP. In addition, facilities will be developed to meet current code requirements and to ensure the long-term operation of the plant functions. Phase 1 of the subject project consists of the replacement of critical core functions and facilities within the 8.4-acre developed area at the WWTP or within the adjacent previously cleared areas, including the following: • Replacement of the headworks, including associated improvements (septage receiving facility, headworks electrical building, and the odor control system); • Replacement of two anaerobic digesters, including associated improvements (sludge blending tanks with odor control facilities, digester control building, digester gas conditioning system, and waste gas flare; and • Demolition of the existing headworks and digester facilities upon completion of the replacement facilities. These Phase 1 improvements are depicted on Figure 4.

	As previously stated, the replacement facilities and associated improvements are sited nearby or adjacent to the facilities being replaced in areas which were cleared of vegetation during construction of WWTP. Subsequent Phases (identified as “Phase 2” and “Future”) of the proposed project consist of: • Facilities to upgrade and improve treatment processes with resultant improvement to the quality of the effluent, • Facilities for odor control, and • Facilities to improve overall operations of the WWTP. These improvements encompass a variety of improved or new plant components affecting secondary treatment, solids handling, warehousing, storage and maintenance functions, and operational control facilities (see Figure 4). Similarly, these project-related ground disturbances would include excavation and grading within the developed area of the plant site for the installation of new equipment, structures, buildings, and associated utilities. The replacement and upgrade facilities do not include water features or create temporary standing water areas that could attract wildlife, including various listed species of waterbirds. Also, no planting of trees is included in the construction plans. Further, during night-time cut over operations to avoid affecting seabirds that may be overflying the project site, the contractor will need to be notified that any lighting should be pointed so the luminaire is parallel to the ground and be sufficiently shielded to ensure no light escapes in an upward direction and off site. Further, to the extent possible, night-time lighting be avoided between September 15 and December 15. Lastly, no offsite construction activities are shown in the construction plans.
Project Area Acreage	The project area comprises a 14.899-acre (6.029-hectare) portion of 2,407.756-acre (974.384-hectare) parcel TMK: (3) 1-2-013:002
Document Purpose and Historic Preservation Regulatory Context	This investigation was conducted—through historical, cultural, and archaeological background research and a field inspection of the project area—to determine the likelihood that archaeological historic properties may be affected by the project. This document is intended to facilitate the project’s planning and support the project’s historic preservation review compliance. This investigation does not fulfill the requirements of an archaeological inventory survey (AIS) investigation, per HAR §13-276.

	This information may also be used to support the DEM's consultation with the SHPD regarding the project's necessary historic preservation review steps pursuant to HAR §13-275. The Hilo Wastewater Treatment Plant project involves funding from the Clean Water State Revolving Fund (CWSRF) and is therefore an undertaking requiring compliance with Section 106 of the National Historic Preservation Act (NHPA) and the Archaeological and Historic Preservation Act (AHPA). The EPA administers the CWSRF program, which authorizes capitalization grants to state agencies in Region 9, including the Hawai‘i State DOH. In turn, the DOH Wastewater Branch provides assistance to county and state agencies for water pollution control projects. In October 2015 the EPA authorized the DOH to undertake consultation with the State Historic Preservation Officer (SHPO), Native Hawaiian organizations (NHOs), and interested parties for projects funded under the CWSRF. Section 106 consultation will be initiated at a future date for this project.
Natural Environment	The Hilo WWTP is situated on the windward side of Hawai‘i Island, on the lower eastern slope of Mauna Loa in the *ahupua‘a* (traditional land division) of Waiākea. The plant is within a generally undeveloped area on the eastern outskirts of Hilo Town. It is 1.8 km (1.2 miles) inland of the Keaukaha coast, at approximately 10 m (33 feet [ft]) above mean sea level (amsl). Rainfall in the vicinity of the plant averages 130 inches per year (Giambelluca et al. 2013). No perennial streams or other surface water features are in proximity. The natural topography in the vicinity of the Hilo WWTP is mildly sloping toward the coast, which is to the north. The plant location has been subjected to extensive prior disturbance associated with development of the existing sewage facilities. This development has completely altered the natural terrain throughout the plant (and project area). According to the U.S. Department of Agriculture (USDA) Soil Survey Geographic (SSURGO) database (2001) and soil survey data gathered by Sato et al. (1973), the majority of the project area overlies Papai extremely stony muck 3–25% slopes (rPAE; Figure 5). This soil type is characterized as "well-drained, thin, extremely stony organic soils over fragmental Aa [rough, broken] lava" … "used mostly for woodland" (Sato et al. 1973:46). Small areas at the northwestern corner and along the southern boundary of the project area are indicated to overlie *pāhoehoe* (smooth, unbroken) lava flows (rLW; see Figure 5). The Hilo WWTP is devoid of vegetation aside from maintained grassy areas surrounding the fenced plant facility, a small area of secondary forest consisting of predominately invasive species at the northeastern corner of the property, and some ornamental landscaping located

	around the administrative buildings at the plant entrance. The plant property is surrounded by dense forest consisting of a mix of native and introduced species.
Built Environment	The project area is within the existing Hilo WWTP which is accessed from Kekuanaoa Place (see Figure 3). The Hilo WWTP is approximately 1.3 km (0.78 miles) southeast of Runway 26 at Hilo International Airport. The nearest residential area lies across the runway and over one (1) mile to the north of the WWTP. During construction of the Hilo WWTP, the entire 14.899-acre project site was cleared of vegetation and graded. The approximately 8.4-acre improved portion of the property comprises the existing WWTP facility. Parking areas and administration buildings are located in the southwestern corner of the facility, and the remainder of the plant contains various sewage facilities, support infrastructure, and diesel fuel storage (see Figure 3 and Figure 4). The ground surface is level throughout with paved and graveled areas. The areas immediately surrounding the 8.4-acre developed area to the south, east, and north have largely remained undeveloped and have served as laydown and staging areas for WWTP maintenance and operations.
Background Research Methods	Background research included a review of previous archaeological studies on file at the SHPD; review of documents at Hamilton Library of the University of Hawai‘i, the Hawai‘i State Archives, the Hawaiian Mission Children's Society Library and Archives, the Hawai‘i Public Library, and the Bishop Museum Archives; study of historic photographs at the Hawai‘i State Archives and the Bishop Museum Archives; and study of historic maps at the Survey Office of the Department of Land and Natural Resources. Historic maps and photographs from the CSH library were also consulted. In addition, Māhele records were examined from the Waihona ‘Aina database (Waihona ‘Aina 2022). This research provided the environmental, cultural, historic, and archaeological background for the project area.
Background Research Summary	Waiākea is a large *ahupua‘a* (traditional land division) encompassing some 95,000 acres. The rich upland resources of taro and sweet potato and abundant marine resources, particularly shrimp and fish, made Waiākea very valuable to the Hawaiian people (Fornander 1916-1919; Kelly et al. 1981). According to Hawaiian folklore and legends, gods and goddesses including Pele, Hi‘iaka, and Pana‘ewa frequented Waiākea. Many legends have associated Waiākea with Hawaiian *ali‘i* (chief) since the sixteenth century and describe it as a gathering place for ceremonies (Emerson 1915; Fornander 1916-1919; Kamakau 1961; Noglemeier 2006; Thrum 1923). In 1979 Holly McEldowney prepared an archaeological and historical literature search and research design as part of a lava flow control study

for Hilo (McEldowney 1979). In her report, McEldowney describes five zones of land use and associated resources as observed during the early historic period. The project area, situated at approximately 33 ft amsl, falls within the lower limits of Zone II (Figure 6), the Upland Agricultural Zone, which was generally characterized by open grassland used for planting (McEldowney 1979:19–20). To some degree these grasslands in Hilo were likely formed by human activity such as swidden agriculture, which would have reduced over time the lowland *‘ōhi‘a* forest like that still present today in portions of Pana‘ewa (McEldowney 1979:21–24). According to Handy and Handy (1972:131–132), the Pana‘ewa forest did also contain house sites with associated planting areas. An 1851 map of Waiākea (Figure 7) depicts the project area within a broad, coastal “Hala Woods” situated *makai* of the “Panaewa Woods.” Thus, the project area was likely used for collection of natural resources, such as the prevalent *lauhala* (leaves of the *hala* plant) used for weaving, and for intermittent, small-scale agriculture, with the natural depressions in lava flows used for mulch-type agriculture.

The shift from a subsistence-based to a market-based economy began in the early 1800s following Western Contact with the Hawaiian Islands. This shift was precipitated by the sandalwood trade, arrival of whalers, introduction of imported food crops (Kelly et al. 1981). During this time Hilo was becoming an important port town. The establishment of the American Board of Commissioners for Foreign Missions (ABCFM) station in Hilo during this time also resulted in significant cultural changes (Kelly et al. 1981).

In the Māhele of 1848 Waiākea Ahupua‘a was held as Crown Land. When Kamehameha I died in 1819, his son Liholiho had received the lands. Two *‘ili kū* (subdivisions of an *ahupua‘a* which pay tribute to the district chief) were awarded to Victoria Kamāmalu, granddaughter of Kamehameha I and heir to Ka‘ahumanu, as part of Land Commission Award (LCA) 7713. These *‘ili kū* included Pi‘oipi‘o near Hilo Bay, and Honohononui, a long strip of land in Keaukaha located west of the project area which extended *mauka* to the vicinity of the road to Puna (see Figure 7). Hudson (1932:246) documented a portion of this trail in the vicinity of the present Keaukaha Military Reservation, calling it the “Puna-Kau Trail.”

According to the Māhele database (Waihona ‘Aina 2022), 28 LCA parcels were granted within Waiākea, most of which were focused around the edges of the large coastal fishponds to the west of the project area near Hilo Bay. Land use information from the *kuleana* or commoner awards generally refer to cultivated fields with house lots,

indicating habitation and agricultural production within the same zone. No LCA are indicated in proximity to the project area.

During the mid-nineteenth century, sugarcane plantation agriculture and ranching came to prominence in Waiākea Ahupua‘a. The Waiakea Sugar Plantation comprised large tracts of land in Hilo, west of Keaukaha, and other plantations and mills cropped up around the district. The Waiakea Plantation and Mill, as well as the road to Puna, are shown on an 1886 map of Hawai‘i Island (Figure 8). By the 1870s, the road to Puna was a functioning horse trail, likely fitting Apple’s (1965:65) Type C classification. Hudson (1932:246) described it as “about 4 feet wide, paved with bits of aa lava and flat stones, banked on the sides, and built up in crossing gullies.”

In 1879, a 3-mile railroad was constructed from Waiakea Mill to the cane fields, “the first in the ‘Sandwich Islands’ to haul sugar with a steam locomotive” (Condé and Best 1973:117). This railroad would be expanded substantially over the coming decades. Portions of the railroad and various plantation mills are illustrated on a 1901 map (Figure 9), which indicates little development in Keaukaha and the vicinity of the project area. Ranching was also primarily focused west of Keaukaha, in the portions of upland Waiākea too rocky for sugarcane. Land use in the project area vicinity likely continued to be focused on procurement of forest resources and small-scale intermittent, small-scale agriculture.

The 1900s brought the onset of urban development to the district of South Hilo. Several major construction projects were undertaken between 1900–1930, including new wharves and boat landings, bridges, the Hilo breakwater, and the Waiolama dredge-and-fill project near the bay (Kelly et al. 1981:287–291). A 1914 map (Figure 10) shows an expansion of the railroad to the new wharf at Kūhi‘ō Bay (completed in 1913) near the new Hilo Breakwater, northwest of the project area. Figure 10 also depicts the Puna Trail passing south of the project area, an unlabeled trail west of the project area that intersected the Puna Trail, and another unlabeled trail north of the project area that connected with the trail to the west.

In 1914 the Governor of the Territory of Hawaii set aside 216.43 acres of land in Waiākea for a National Guard of Hawaii rifle range. A 1915 map (Figure 11) depicts the new rifle range in the vicinity of the present Keaukaha Military Reservation, west of the project area. By 1927, the military reservation had expanded to nearly 1,000 acres (Wheeler et al. 2014:37). Figure 11 also shows other recent developments including the Hilo Breakwater, wharves, expanded Hilo Railroad, and Waiākea House Lots in relation to the project area and the *‘ili kū* of Honohononui.

	The Keaukaha Hawaiian Homestead settlement was also developed in the 1920s. The settlement, depicted northwest of the project area in Figure 12, was the second established in the state under the Hawaiian Homes Commission Act and was described as “an unqualified success” (Kelly et al. 1981:229). By 1931 more than 200 house lots were occupied by a population of over 1,200 (Kelly et al. 1981:233). Development of the Hilo Airport, adjacent to the Keaukaha Homestead, also began in the 1920s (Kelly et al. 1981:230). The onset of World War II resulted in expansion and designation of Hilo airport as General Lyman Field by the U.S. military. This and subsequent airport expansions adversely affected the adjacent Keaukaha homestead community, displacing many lessees (Kelly et al. 1981:234–235). Also during this time period, the April 1946 tsunami caused extensive damage and loss of life in Hilo (Kelly et al. 1981:291). The road into Keaukaha was washed out, and the breakwater and piers at the Kūhi‘ō wharf were also damaged. Following Statehood in 1959 and the decline of the sugar industry, tourism became an economic mainstay for the Hilo area. Another tsunami in 1960 caused great damage throughout Hilo, and subsequently portions of the town were reorganized to minimize devastation from future tsunami (Clark 1985:16). A 1963 topographic map (Figure 13) depicts the continued development in the vicinity of the project area. In 1967 a sewage treatment plant was constructed at Puhi Bay, at the coast fronting the Keaukaha homesteads (Kelly et al. 1981:248, 292). This treatment plant is visible on a 1977 orthophoto (Figure 14). In 1989, General Lyman Field was renamed as Hilo International Airport. The airport is in the process of being modernized through a variety of projects. In 1994 a new Hilo wastewater treatment plant was completed southeast of the airport at its current location. The treated effluent is gravity fed to the ocean outfall located at Puhi Bay. The old sewage plant site at Puhi Bay contains a wastewater pump station and an aquaculture research and training center. The Keaukaha Military Reservation continues to be utilized by the Hawaii National Guard.
Prior Archaeological Studies Summary	Six previous archaeological studies have been identified within 1.5 kilometers (km) (0.9 miles) of the current project area. These studies are depicted in relation to the project area in Figure 15 and summarized in Table 1. Of these studies, only one (Rosendahl 1988) overlaps the current project area. No historic properties have been previously documented within 1 km of the current project area. Paul H. Rosendahl, Inc. (PHRI) in 1988 conducted an archaeological reconnaissance survey for an environmental impact statement (EIS) for the proposed Hilo Wastewater Treatment Plant project (Rosendahl

	1988; see Figure 15). No archaeological features were identified during the reconnaissance and no additional archaeological work was recommended.
Fieldwork Effort and Findings	The various components of the project area were inspected over three separate days: 12 July 2022, 7 October 2022, and 31 January 2023. Fieldwork was conducted by CSH Project Directors Olivier M. Bautista, B.A., and Sarah Wilkinson, B.A., under the general supervision of Principal Investigator Hallett H. Hammatt, Ph.D. The field inspection generally consisted of a 100% pedestrian coverage of the project area. Photographs were taken of the general project area, as well as each of the Phase 1, Phase 2, and Future improvement locations shown on Figure 4. A Garmin 60CSx handheld GPS device was carried by the crew to identify the boundaries of the project area and to record any points of interest. The field inspection effort confirmed the entire project area—comprising the entire 14.899-acre WWTP site—has been subjected to extensive prior disturbance related to the development of the existing treatment plant. All areas within the WWTP property boundary—both inside and outside the facility’s security fence—have been graded and subjected to variable levels of additional development, completely altering the natural terrain. Representative photographs (Figure 16 through Figure 28) depict the built environment within the fenced plant facility. All but three of the planned improvements are within this portion of the project area, which consists of existing modern buildings and structures, open gravel areas, parking areas, and driveways. The perimeter between the plant security fence and the property boundary is generally maintained, open grassy areas that have been used for stockpiling and staging (Figure 29 through Figure 32). A gravel roadway located along the western property boundary within the perimeter area accesses lands north of the project area (Figure 33). A portion of the area to the north of the security fence has not been used or maintained in recent years, and now contains a dense canopy of invasive vegetation. Clear signs of prior grading and disturbance were observed throughout the limits of this forested area (Figure 34 and Figure 35). No archaeological features representing potential historic properties were encountered in any portion of the project area.
Potential for Project Effect on Historic Properties	Background research and the results of the field inspection indicate an absence of known or potential historic properties within the project area.

Recommendations	Based on the absence of any surface archaeological features in the project area and the extent of prior ground disturbance, further archaeological study is not recommended for the Hilo Wastewater Treatment Plant Improvements Projects. Consultation with the SHPD should be sought for concurrence with this recommendation, and to obtain any further determinations of historic preservation requirements for the project.

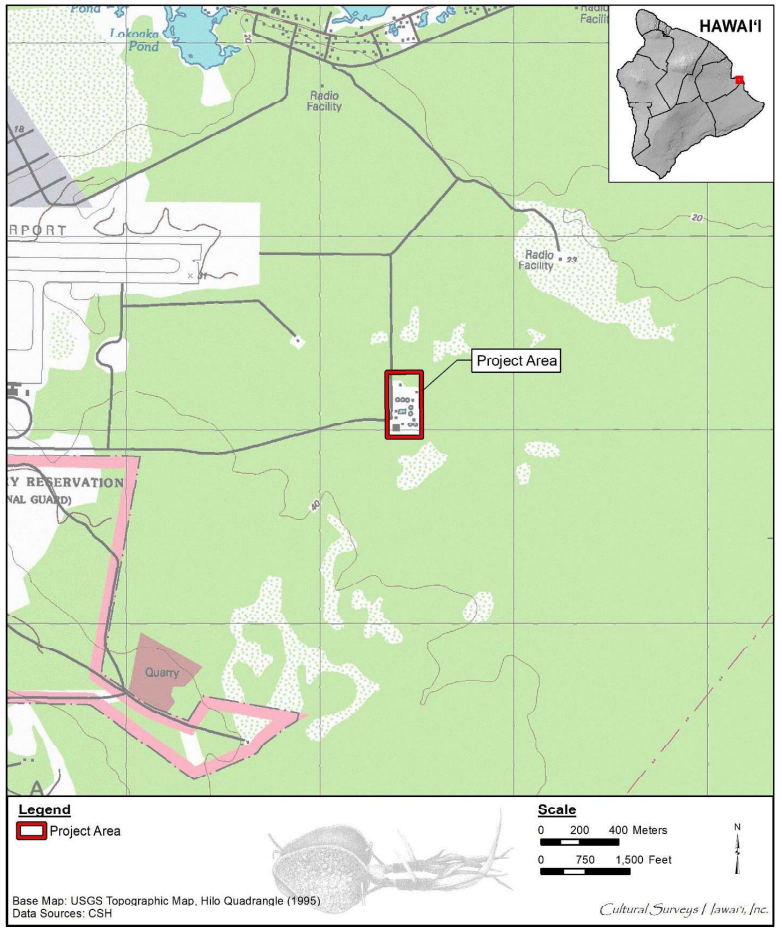

Figure 1. Portion of the 1995 Hilo USGS 7.5-minute topographic quadrangle showing the project area in relation to landmarks such as the airport runway, rock quarry, radio facilities, and the coastline to the north

Figure 3. Aerial photograph (ESRI 2021) showing the project area

Figure 2. Tax Map Key (TMK) (3) 2-1-013 showing the project area at the existing WWTP in a portion of parcel 002 (Hawai'i TMK Service 2010)

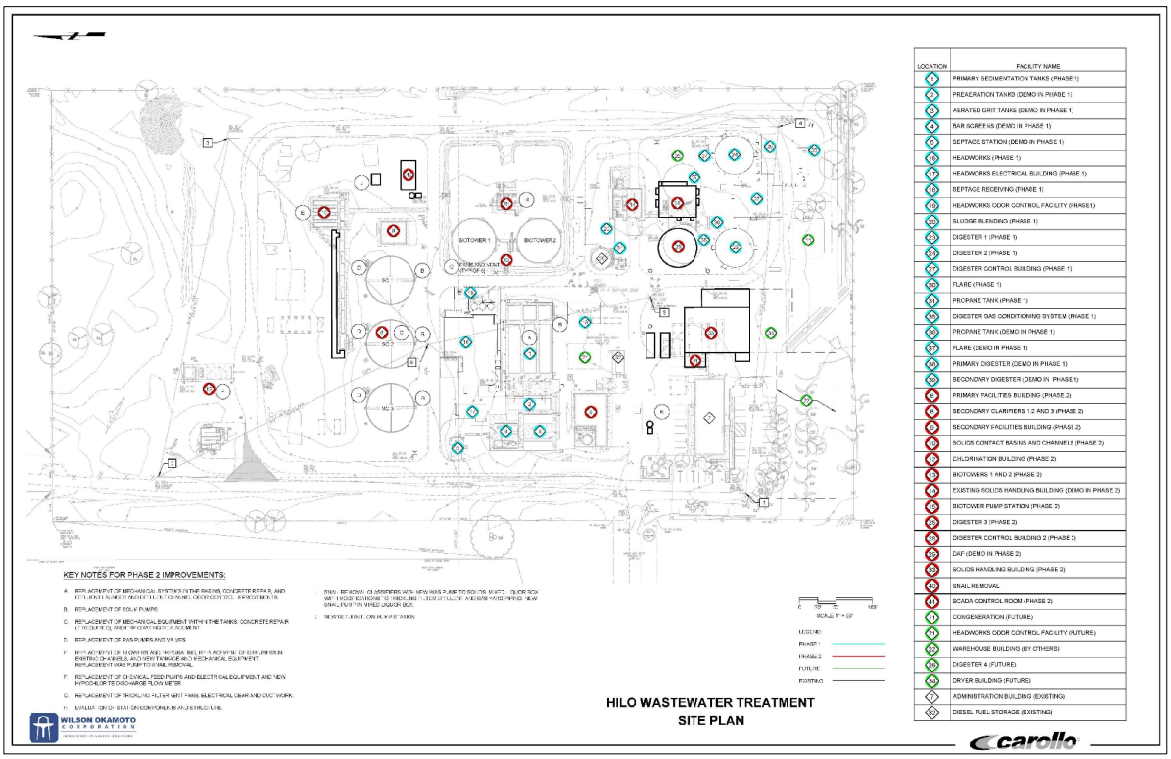

Figure 4. Conceptual site plan showing various Phase 1, Phase 2, and Future improvements in relation to existing facilities (courtesy of client)

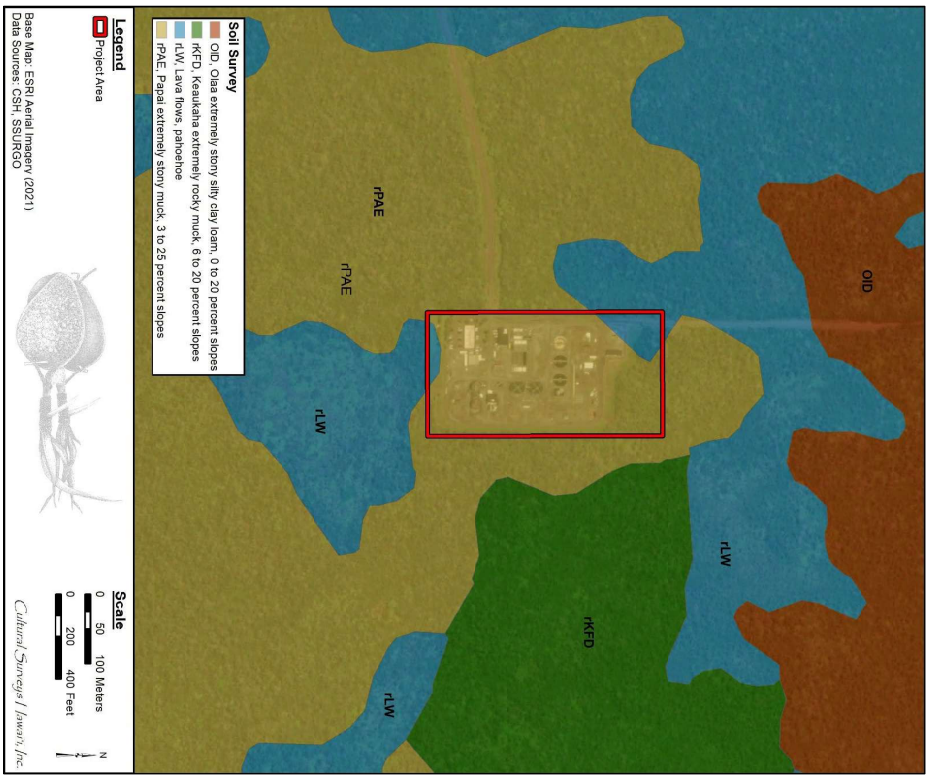

Figure 5. Overlay of *Soil Survey of the Island of Hawaii* (Sato et al. 1973), indicating soil and land types within project area (USDA SSURGO 2001)

Figure 6. Map showing Zones of Early Historic-Period Land Use as described by McEldowney (1979:64)

Figure 7. Portion of the 1851 Webster Plan of Waiakea, showing the location of the project area (in red) within the "Hala Woods," *makai* of the "Road to Puna" and "Panaewa woods," and east of the *'ili kū* of "Honohononui"

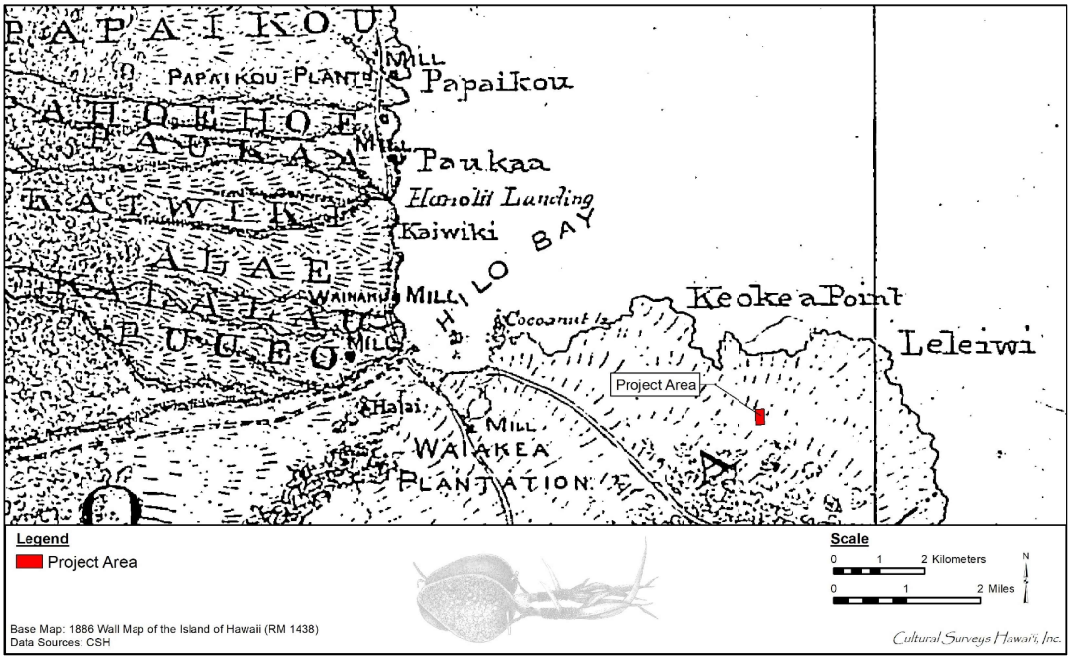

Figure 8. Portion of 1886 Wall map of the Island of Hawai'i showing the project area

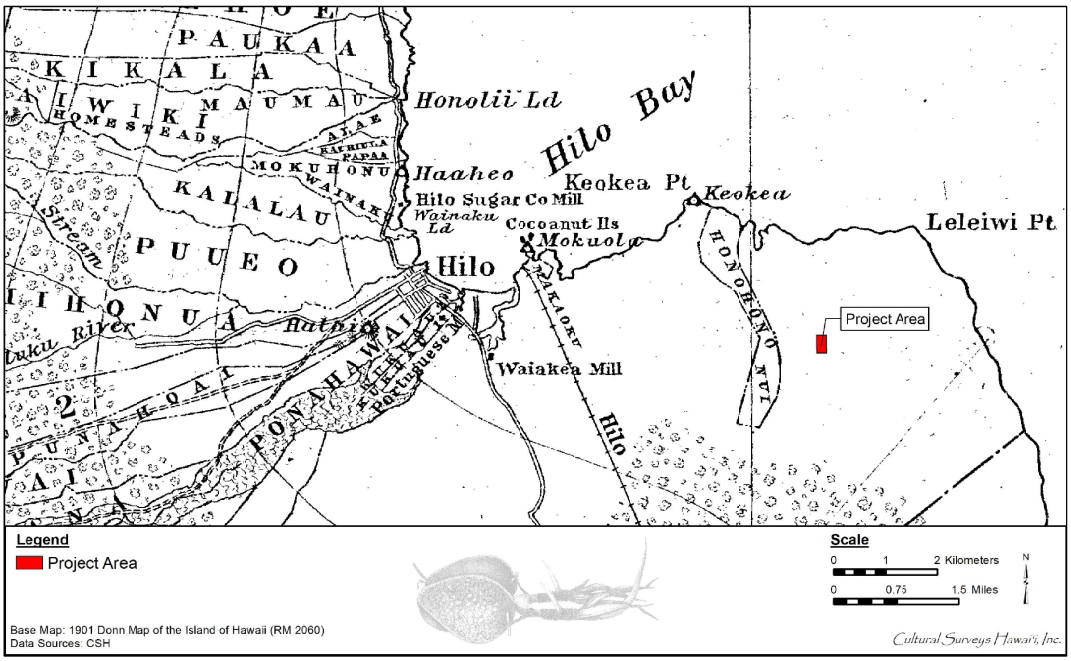

Figure 9. Portion of 1901 Donn map of the Island of Hawai'i showing the project area in relation to the Waiakea Mill, Hilo Railroad, and other developments

Figure 10. Portion of the 1914 Waiakea USGS 7.5-minute topographic quadrangle showing the project area in relation to the Waiakea Mill, Hilo Railroad, and the Puna Trail

Figure 11. Portion of the 1915 Wall map of Waiakea Government Tract showing the project area in proximity to developments including the National Guard of Hawaii Rifle Range, Hilo Breakwater, wharves, Hilo Railroad, and Waiākea House Lots

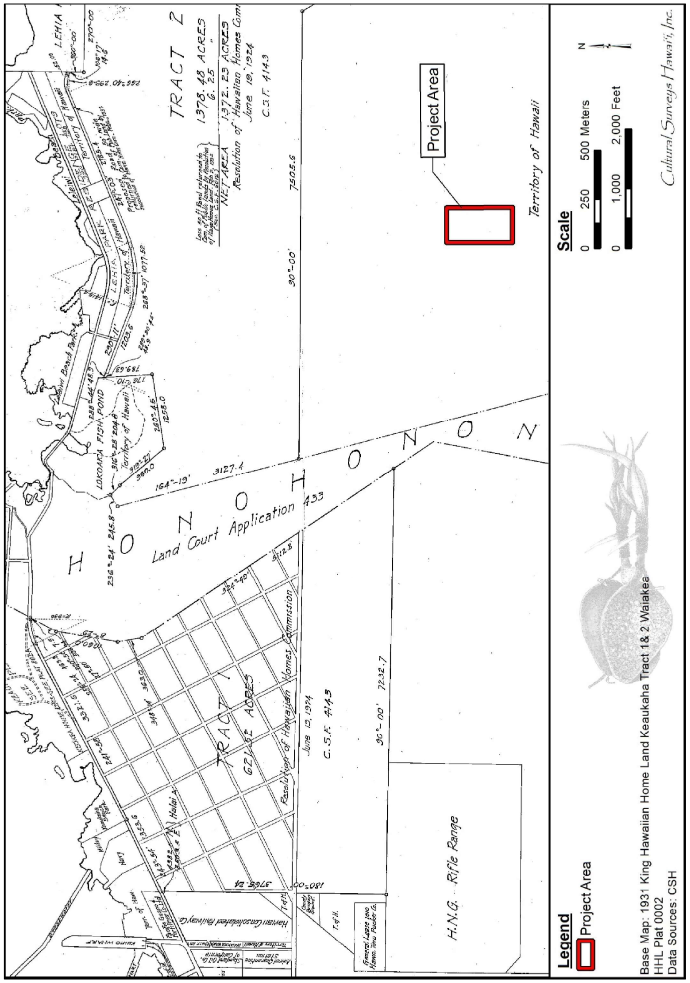

Figure 12. 1931 King map of Hawaiian Homeland Keaukaha Tract showing the location of the project area

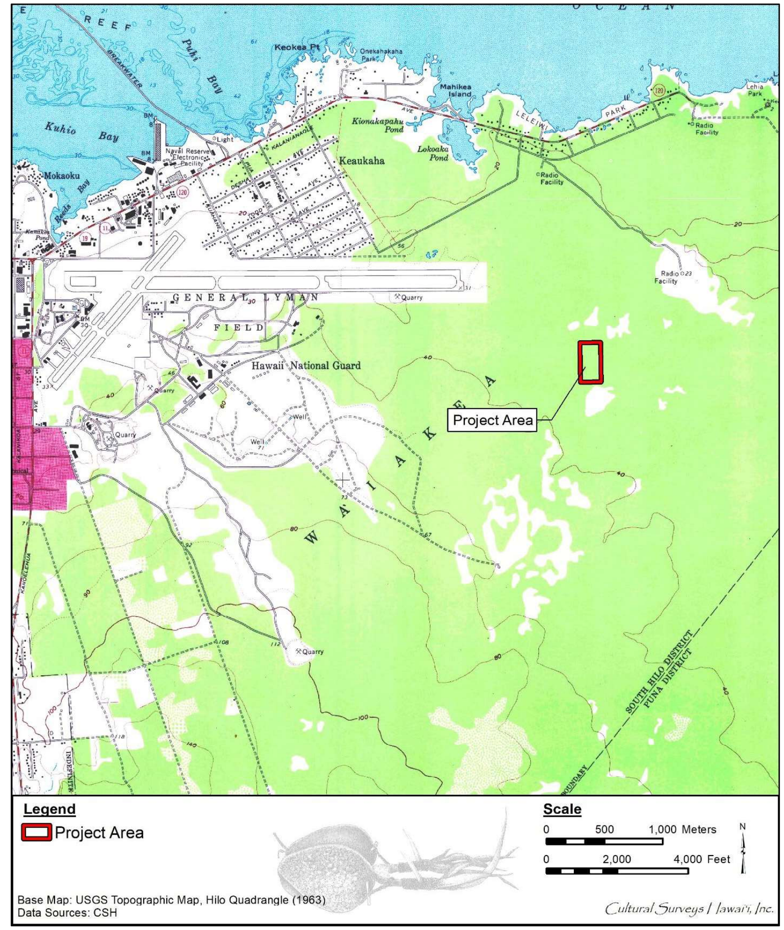

Figure 13. Portion of the 1963 Hilo USGS 7.5-minute topographic quadrangle showing continued development in the vicinity of the project area

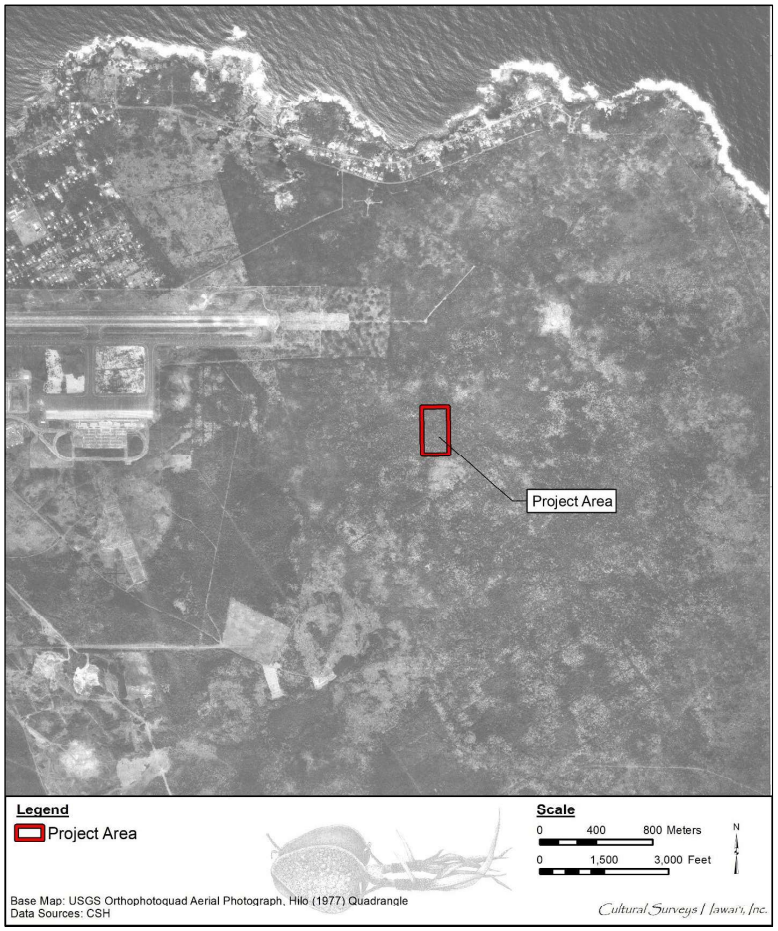

Figure 14. 1977 USGS Orthophoto showing continued development in the vicinity of the project area

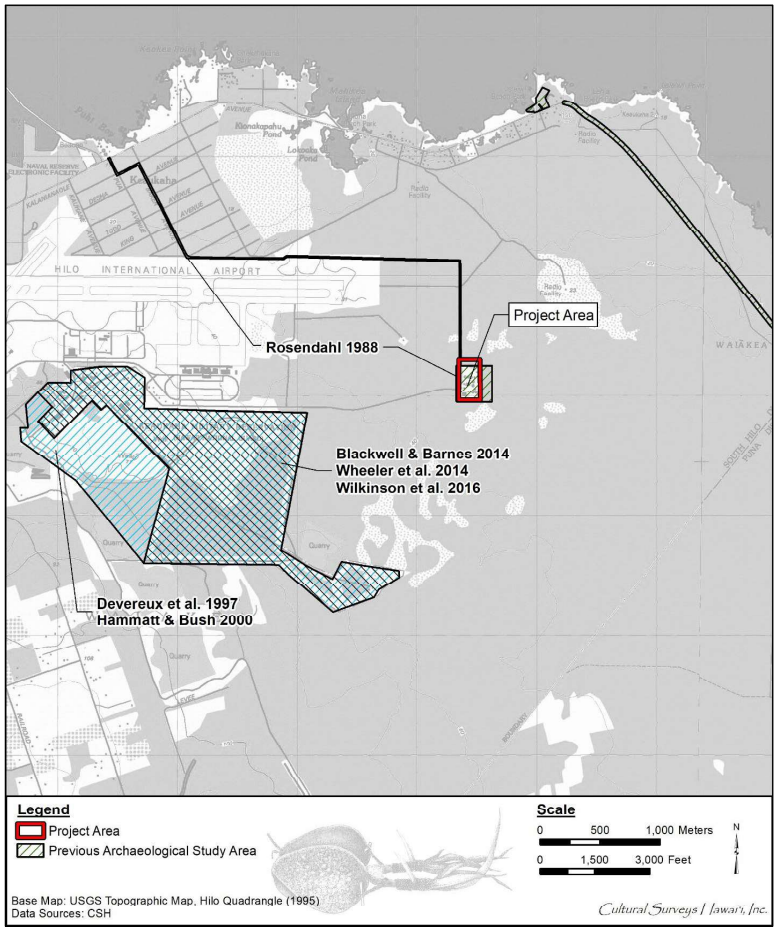

Figure 15. 1995 Hilo USGS topographic quadrangle showing the approximate locations of previous archaeological studies situated within 1.5 km of the project area; note previous studies located beyond this distance not shown

Table 1. Previous archaeological studies located within 1.5 km of the project area

Reference	Type of Study	Location	Results (SIHP # 50-10-35)
Rosendahl 1988	Archaeological reconnaissance survey	Hilo Wastewater Treatment Facility (included an associated sewer line corridor extending 3,810 m to old plant site at Puhi Bay), Waiākea, TMKs: (3) 2-1-013:012, 013, 020, and 022 por.	No historic properties identified
Devereux et al. 1997	Archaeological reconnaissance survey	503.6 acres at Hawaii Army National Guard Keaukaha Military Reservation, Waiākea, TMKs: (3) 2-1-012:003 and 2-1-013:010	Documented two sites, not assigned SIHP numbers, located over 1.5 km from current project area: CSH-1 (C-shape enclosure) and CSH-2 (coral mound); see Hammatt and Bush 2000 and Wheeler et al. 2014
Hammatt and Bush 2000	Archaeological inventory survey	503.6 acres at Hawaii Army National Guard Keaukaha Military Reservation, Waiākea, TMKs: (3) 2-1-012:003 and 2-1-013:010	Documented four historic properties, all located over 1.5 km from current project area: SIHP #s -18869 (Puna Trail), -21657 (military C-shape initially identified by Devereux et al. 1997), -21658 (five *ahu* or cairns), and -21659 (modified blister); deaccessioned coral mound documented by Devereux et al. 1997
Blackwell and Barnes 2014	Historic building survey and evaluation report	Six Hawaii Army National Guard Facilities Statewide, including Keaukaha Military Reservation, Waiākea, TMKs: (3) 2-1-012:003, 131, and 2-1-013:010	Documented ten buildings and four ranges, of which all but one are historic in age; all of the buildings and ranges recommended not eligible for listing on the National Register of Historic Places (NRHP); all buildings and ranges located over 1.5 km from current project area

Reference	Type of Study	Location	Results (SIHP # 50-10-35)
Wheeler et al. 2014	Phase I (surface) archaeological inventory survey and monitoring plan	Hawaii Army National Guard Keaukaha Military Reservation, Waiākea, TMKs: (3) 2-1-012:003, 131, and 2-1-013:010	Documented five previously identified historic properties (SIHP #s -18869, Puna Trail; -21657, military C-shaped enclosure; -21658, mound complex; -21771, complex; -23273, trail and agricultural complex); and six newly identified historic properties (SIHP #s -30008, lava tube shelter; -30009, modified outcrop complex; -30010, historic complex; -30011, historic complex; -30012, historic trail; and -30038, trail segment associated with Puna Trail); all sites located over 1.5 km from current project area
Wilkinson et al. 2016	Phase II (subsurface) archaeological inventory survey	Hawaii Army National Guard Keaukaha Military Reservation, Waiākea Ahupua‘a, TMKs: (3) 2-1-012:003 and 2-1-013:010	Documented three previously identified historic properties (SIHP #s -21771, -30008 and -30010) and two newly identified historic properties (SIHP #s -30216, historic terrace; and -30217, agricultural complex); all sites located over 1.5 km from current project area

Figure 16. Photo overlooking the Hilo WWTP from the parking lot at the fenced plant entrance; view to east

Figure 17. Photo overlooking the Hilo WWTP from the existing digester control building; view to northwest

Figure 18. Photo overlooking the northeastern portion of the Hilo WWTP, where Phase 2 improvements are planned; view to north

Figure 19. Photo overlooking existing basins in the northeastern corner of the Hilo WWTP, where a Phase 2 improvement is planned; view to northwest

Figure 20. Photo overlooking the northwest portion of the Hilo WWTP, where Phase 1 and Phase 2 improvements are planned; view to north

Figure 21. Photo overlooking the northwestern corner of the Hilo WWTP, where a Phase 2 improvement is planned at the tan-colored structure visible at center of photo; view to northwest

Figure 22. Photo overlooking the central-eastern portion of the Hilo WWTP, where several Phase 1, Phase 2, and Future improvements are planned; view to north

Figure 23. Photo overlooking the central-western portion of the Hilo WWTP, where several Phase 1 improvements are planned; view to southwest

Figure 24. Photo overlooking existing sedimentation tanks in the central-western portion of the Hilo WWTP, where Phase 1 improvements are planned; view to west

Figure 25. Photo overlooking the central-western portion of the Hilo WWTP, where Phase 1, Phase 2, and Future improvements are planned; view to west

Figure 26. Photo overlooking an existing facilities building near the plant entrance, where a Phase 2 improvement is planned; view to south

Figure 27. Photo overlooking the southwestern portion of the Hilo WWTP, where several Phase 1, Phase 2, and Future improvements are planned; view to east

Figure 28. Photo overlooking the southwest corner of the Hilo WWTP, where several Phase 1, Phase 2, and Future improvements are planned; view to west

Figure 29. Photo overlooking the open, graded perimeter area in the southwest corner of the property outside the plant security fence, where a future warehouse building is planned; view to south

Figure 30. Photo overlooking the open, graded perimeter area immediately south of the plant security fence, where a Phase 1 flare and Future cogeneration facility are planned; view to west

Figure 31. Photo overlooking the open, graded perimeter area immediately east of the plant security fence; view to south

Figure 32. Photo overlooking the open, graded perimeter area immediately north of the plant security fence, note area of dense invasive forest to right; view to west

Figure 33. Photo overlooking the gravel roadway and adjacent graded areas located along the northwestern boundary of the plant property; view to south

Figure 34. Photo showing extensive prior ground disturbance in the invasive forest at the northeastern corner of the plant property (survey marker with pink flagging visible at center); view to northeast

Figure 35. Photo showing graded and leveled terrain within the area of dense invasive forest north of the plant security fence; view to southwest

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Attachment E

Hilo WWTP Rehabilitation and Replacement Projects
Section 106 Consultation Contact List
CWSRF Project Numbers: C150062-53, C150062-54
CSH job Code: WAIAKEA 37

Name	Affiliation/Organization	Contact Info
SHPO Contact		
Dr. Downer, Alan	SHPO Administrator	Kakuhihewa Building 601 Kamokila Blvd., Suite 555 Kapolei, HI 96707 Phone: 808-692-8015 Fax: 808-692-8020 E-mail: alan.s.downer@hawaii.gov (submit via HICRIS)
NHO Contacts		
Aila, William Jr.	Chairman, Hawaiian Homes Commission	P.O. Box 1879, Honolulu, Hawai'i, 96805 william.j.ailajr@hawaii.gov
Almeida, Antoinette Kauilani	President, Panaewa Hawaiian Home Lands Community Association	132 Kaieie Place, Hilo, HI 96720 (808) 938-3330 panaewahhlca@gmail.com
Anthony, Kamala	Leleiwi Community Association; Hui Hoʻoleimaluō	@ LCA: 19 Iwalani Street, Hilo, HI 96720 @ Hui Hoʻoleimaluō: 2306 Kalaniʻanaʻole Street, Hilo, HI 96720 kamala.anthony@huihooleimaluo.com (808) 430-2032
Brown, Samson	President, Au Puni o Hawaii	apohi21@gmail.com 21 Pohai Street Hilo, HI 96720
Farden, Hailama	President, Association of Hawaiian Civic Clubs	PO Box 1135 Honolulu, HI 96807 ahcc.nuhou@gmail.com

Name	Affiliation/Organization	Contact Info
Fergerstrom, Hanalei	Spokesperson, Na Kupuna Moku O Keawe	P.O. Box 951 Kurtistown, HI 96760 (808) 938-9994 hankhawaiian@yahoo.com
Hanohano, Piʻilani	Government Relations Coordinator, Kamehameha Schools - Community Relations and Communications Group, Government Relations	567 South King Street, Ste 400 Honolulu, HI 96813 (808) 523-6368 pihanoha@ksbe.edu
Hiraishi, Michelle Malia	Executive Director, Hui Mālama Ola Nā ʻŌiwi	69 Railroad Ave, Ste A-3 Hilo, HI 96720 (808) 969-9220 michelle@huimalamahawaii.com
Dr. Hussey, Sylvia Cc: Kamakana Ferreira (Lead Compliance Specialist), Lauren Morawski (Compliance Archaeologist), Shane Nelson (Community Outreach Advocate)	Chief Executive Officer, Office of Hawaiian Affairs	560 N. Nimitz Hwy. Suite 200 Honolulu, HI 96817 808-594-1835 kamakanaf@oha.org laurenm@oha.org shanen@oha.org
Kahawaiolaa, Patrick L.	President, Keaukaha Community Association	P.O. Box 5146, Hilo, HI 96720 (808) 937-8217 kcaiprez@gmail.com
Lewis, Joseph Kūhiō Lewis	CEO, Council for Native Hawaiian Advancement	91-1270 Kinoiki Street, Building 1 Kapolei, HI 96707 (808) 596-8155 info@hawaiiancouncil.org

Name	Affiliation/Organization	Contact Info
Mahoney, Scott c/o Jordan Calpito and Christian Omerod, SHPD Burial Sites Specialists Cc: Traven Apiki (HIBC Hilo Representative)	Chair, Hawai'i Island Burial Council	SHPD Hilo Office 40 Po'okela Street Hilo, HI 96720 (Also be sure to email the letter to jordan.v.calpito@hawaii.gov and christian.omerod@hawaii.gov as SHPD staff have been working remotely)
Napeahi, Terri	Aha Moku Council, Hilo Representative	tnpeahi@yahoo.com
Rodrigues, Vincent Hinano	SHPD History & Culture Branch Chief	130 Mahalani Street Wailuku, Hawai'i 96793 (808) 243-4640 (808) 243-5838 (f) Hinano.R.Rodrigues@hawaii.gov
Trask, Mililani	Convenor, Na Koa Ikaika Ka Lahui Hawaii	PO Box 6377 Hilo, HI 96720 (808) 961-4811 mililani.trask@icllchawaii.com
Wise, Taffi	Executive Director, Kanu o ka ʻĀina Learning ʻOhana	PO Box 6511 Kamuela, HI 96743 (808) 887-1117 taffi@kalo.org
Dr. Wong-Wilson, Noe Noe	President, Hawaiian Civic Club of Hilo	PO Box 592 Hilo, HI 96720
--	Keaukaha Panaʻewa Farmers Association	P.O. Box 6844 Hilo, HI 96720 kp.farmers@gmail.com

APPENDIX E

Early Consultation
Comments and Responses

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

October 19, 2023

Wilson Okamoto Corporation
Attn: Mr. Keola Cheng
Director of Planning
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

via email: publiccomment@wilsonokamoto.com

Dear Mr. Cheng:

SUBJECT: Environmental Assessment (EA) Early Consultation for the Proposed **Hilo Wastewater Treatment Plant Improvements** located at Waiakea, Hilo, Island of Hawaii; TMK: (3) 2-1-013:002 por. on behalf of County of Hawaii, Department of Environmental Management

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-Hawaii District 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

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

September 28, 2023

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 – Hawaii District (gordon.c.heit@hawaii.gov)
___Aha Moku Advisory Committee

TO: ~~FROM:~~ Russell Y. Tsuji, Land Administrator *Russell Tsuji*

SUBJECT: Environmental Assessment (EA) Early Consultation for the Proposed **Hilo Wastewater Treatment Plant Improvements**

LOCATION: Waiakea, Hilo, Island of Hawaii; TMK: (3) 2-1-013:002 por.

APPLICANT: Wilson Okamoto on behalf of County of Hawaii, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **October 19, 2023.**

If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Darlene Nakamura 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: *Carty Chang*
Print Name: Carty S. Chang, Chief Engineer
Division: Engineering Division
Date: Oct 6, 2023

Attachments
cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji

Ref: Environmental Assessment (EA) Early Consultation for the Proposed Hilo Wastewater Treatment Plant Improvements
Location: Waiakea, Hilo, Island of Hawaii
TMK(s): (3) 2-1-013:002 por.
Applicant: Wilson Okamoto on behalf of County of Hawaii, Department of Environmental Management

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 to research 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: Oct 6, 2023

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02
January 8, 2024

Mr. Carty Chang
Department of Land and Natural Resource
State of Hawaii
1151 Punchbowl Street, Room 221
Honolulu, HI 96813

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Mr. Chang:

Thank you for your letter dated October 6, 2023, regarding the subject Early Consultation Package for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project. We acknowledge your comments which have been considered in the preparation of the Draft EA with regard to meeting content requirements prescribed in Hawai‘i Administrative Rules, Title 11, Chapter 200.1, Section 18. A record of your comments, along with this response, have been reproduced and are appended to the Draft EA in Appendix E.

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

10/12/23

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

September 28, 2023

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 – Hawaii District (gordon.c.heit@hawaii.gov)
___Aha Moku Advisory Committee

FROM: Russell Y. Tsuji, Land Administrator Russell Tsuji
SUBJECT: Environmental Assessment (EA) Early Consultation for the Proposed **Hilo Wastewater Treatment Plant Improvements**
LOCATION: Waiakea, Hilo, Island of Hawaii; TMK: (3) 2-1-013:002 por.
APPLICANT: Wilson Okamoto on behalf of County of Hawaii, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced subject matter. Please submit comments by **October 19, 2023.**

If no response is received by the above date, we will assume your agency has no comments. Should you have any questions about this request, please contact Darlene Nakamura 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: GORDON C. HEIT
Division: Land Division
Date: 10/11/23

Attachments
cc: Central Files

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02
January 8, 2024

Mr. Gordon Heit
Department of Land and Natural Resource, Land Division
State of Hawaii
1151 Punchbowl St
Honolulu, HI 96813

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Mr. Heit:

Thank you for your letter dated October 11, 2023, regarding the subject Early Consultation Package for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project. We acknowledge that the Department of Land and Natural Resources, Land Division – Hawaii District has no comments or objections to the Proposed Project. A record of your letter, along with this response, have been reproduced and are appended to the Draft EA in Appendix E..

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAIʻI
DEPARTMENT OF HEALTH
KA ʻOIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378#

In reply, please refer to:
File:

6644 – 3 2 1 013 002 EA Early Cons
Hilo WWTP Improvements

October 23, 2023

Mr. Keola Cheng
Director of Planning
Wilson Okamoto Corporation
1907 South Beretania Street Suite 400
Honolulu, Hawaii 96826
Email: publiccomment@wilsonokamoto.com

Dear Mr. Cheng:

Subject: Environmental Assessment (EA) Early Consultation
Hilo Wastewater Treatment Plant Improvements
150 Kekuanaoa Place, Hilo, Hawaii 96720
TMK (3) 2 -1 -013: 002 portion

Thank you for allowing us the opportunity to provide comments for the subject matter.

The subject project may be funded by the State of Hawai'i Clean Water State Revolving Fund (CWSRF) Program. If this is the case, then please ensure that the draft and final environmental decision documents address all applicable federal environmental cross-cutting authorities and the Hawai'i State Environmental Review Process as required by the CWSRF Program.

In addition, the subject project shall conform to applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems." Design plans should address any effects associated with the construction of and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources or the exercise of traditional cultural practices.

Should you have any questions, please call Mr. Mark Tomomitsu of my staff at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM/MST:ct

c: Mr. Chane Hayashida, via email
Ms. Domciely Oda, via email

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02
January 8, 2024

Ms. Sina Pruder
Department of Health Wastewater Branch
State of Hawaii
2827 Waimano Home Road, Suite 207
Pearl City, Hawaii 96782

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Ms. Pruder:

Thank you for your letter dated October 23, 2023, regarding the subject Early Consultation Package for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project. We acknowledge your comments which have been considered in the preparation of the Draft EA with regard to meeting content requirements prescribed in Hawai‘i Administrative Rules, Title 11, Chapter 200.1, Section 18. A record of your comments, along with this response, have been reproduced and are appended to the Draft EA in Appendix E.

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

JOSH GREEN, M.D.
GOVERNOR
KE KIA'ĀINA

EDWIN H. SNIFFEN
DIRECTOR
KA LUNA HO'OKELE

Deputy Directors
Ka Hope Luna Ho'okele
DREANALEE K. KALILI
TAMMY L. LEE
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:

DIR 0715
STP 8.3670

October 20, 2023

VIA EMAIL: publiccomment@wilsonokamoto.com

Mr. Keola Cheng
Director – Planning
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Cheng:

Subject: Early Consultation for Environmental Assessment
Hilo Wastewater Treatment Plant Improvements
Hilo, Hawaii Island, Hawaii
Tax Map Key: (3) 2-1-013: 002 (por.)

Thank you for your letter dated September 22, 2023, requesting the Hawaii Department of Transportation's (HDOT) review and comments on the early consultation for an Environmental Assessment for the subject project. HDOT understands County of Hawaii, Department of Environmental Management is proposing the construction of new facilities and rehabilitation of existing facilities to improve the treatment processes at the Hilo Wastewater Treatment Plant (WWTP).

HDOT has the following comments:

1. The proposed WWTP Improvements and Staging Area are approximately 0.24 miles from the property boundary of Hilo International Airport (ITO). All projects within 5 miles from Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. The TAM can be viewed at this link: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf.

2. Federal Aviation Administration (FAA) regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or Alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a

public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, shall be included in the submittal. The form and criteria for submittal can be found at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp. Please provide a copy of the FAA response to the Part 77 analysis to the HDOT Airport Planning Section.

3. The HDOT requires that the proposed development does not provide landscape and vegetation that will create a wildlife attractant. Wastewater Treatment Facilities have the potential to create standing water, which has been determined to be a wildlife attractant. The HDOT recommends that the developer incorporate measures to minimize hazardous wildlife attractants in compliance with the FAA Advisory Circular 150/5200-33C, Hazardous Wildlife Attractants On Or Near Airports. If the development creates a wildlife attractant that can potentially become a hazard to aircraft operations, the developer shall immediately mitigate the hazard upon notification by the HDOT and/or FAA.

4. Based on the project description and location provided, the HDOT Highways does not anticipate significant impact to the State highway system directly or indirectly, therefore has no comments.

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.

Sincerely,

EDWIN H. SNIFFEN
Director of Transportation

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02
January 8, 2024

Mr. Edward Sniffen
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Mr. Sniffen:

Thank you for your letter dated October 20, 2023, regarding the subject Early Consultation Package for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project. We acknowledge your comments which have been considered in the preparation of the Draft EA with regard to meeting content requirements prescribed in Hawai‘i Administrative Rules, Title 11, Chapter 200.1, Section 18. A record of your comments, along with this response, have been reproduced and are appended to the Draft EA in Appendix E.

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

Mitchell D. Roth
Mayor

Benjamin T. Moszkowicz
Police Chief

Reed K. Mahuna
Acting Deputy Police Chief

County of Hawai`i

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

September 26, 2023

Wilson Okamoto Corporation
Attn: Keola Cheng
1907 South Beretania Street, Suite 400
Honolulu, HI 96826
publiccomment@wilsonokamoto.com

Dear Mr. Cheng:

SUBJECT: ENVIRONMENTAL ASSESSMENT (EA) EARLY CONSULTATION FOR HILO WASTEWATER TREATMENT PLANT IMPROVEMENTS HILO, HAWAII, TMK: 2-1-013:002

Staff received your letter dated September 22, 2023. Upon reviewing the provided documents, the Hawaii Police Department does not anticipate any impact to traffic and/or public safety concerns and has no objection to the project.

Thank you for allowing us the opportunity to comment.

If you need further assistance on this matter, you may contact Captain Sandor Finkey, South Hilo district commander directly at (808) 961-2214 or through email at sandor.finkey@hawaiicounty.gov.

Sincerely,

KENNETH A. K. QUIOCHO
ASSISTANT POLICE CHIEF

SF

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02
January 8, 2024

Mr. Kenneth Quiocho
Police Department County
of Hawaii 349 Kapiolani
Street Hilo, Hawaii 96730

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Mr. Quiocho

Thank you for your letter dated September 26, 2023, regarding the subject Early Consultation Package for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project. We acknowledge that the County of Hawaii Police Department has no comments or objections to the Proposed Project. A record of your letter, along with this response, have been reproduced and are appended to the Draft EA in Appendix E.

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

From: Mills, Kimberly T <kimberly.mills@hawaii.gov>
Sent: Friday, October 20, 2023 5:07 PM
To: Public Comment
Subject: Request for comments EA Early Consultation for Hilo WWTP

The Office of Conservation and Coastal Lands (OCCL) has reviewed the information regarding the subject matter on a portion of TMK; (3) 2-1-013:002 and note the project area does not appear to be in the Conservation District.

Should there be any questions, feel free to contact me here.

~Tiger
K. Tiger Mills, Staff Planner
State of Hawai`i
Department of Land and Natural Resources
Office of Conservation And Coastal Lands
P.O. Box 621
Honolulu, Hawai`i 96809
www.dlnr.hawaii.gov/occl

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02
January 8, 2024

Ms. K. Tiger Mills
State of Hawai‘i
DLNR - Office of Conservation and Coastal Lands
1151 Punchbowl Street, Room 131
Honolulu, HI 96813

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Ms. Mills

Thank you for your e-mail dated October 20, 2023, regarding the subject Early Consultation Package for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project. We acknowledge that the Department of Land and Natural Resources – Office of Conservation and Coastal Lands has no comments or objections to the Proposed Project. A record of your letter, along with this response, have been reproduced and are appended to the Draft EA in Appendix E.

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

07016CMHK.23

July 28, 2023

MEMORANDUM

SUBJECT: Clean Water Branch Standard Project Comments

TO: Agencies and Project Owners

FROM: DARRYL LUM, P.E., CHIEF
Clean Water Branch

This memo is provided for your information and sharing. You are encouraged to share this memo with your project partners, team members, and appropriate personnel.

The Department of Health (DOH), Clean Water Branch (CWB) will no longer be responding directly to requests for comments on the following documents (Pre-consultation, Early Consultation, Preparation Notice, Draft, Final, Addendums, and/or Supplements):

- Environmental Impact Statements (EIS)
- Environmental Assessments (EA)
- Stream Channel Alteration Permits (SCAP)
- Stream Diversion Works Permits (SDWP)
- Well Construction/Pump Installation Permits
- Conservation District Use Applications (CDUA)
- Special Management Area Permits (SMAP)
- Shoreline Setback Areas (SSA)

For agencies or project owners requiring DOH-CWB comments for one or more of these documents, please utilize the DOH-CWB Standard Comments below regarding your project's responsibilities to maintain water quality and any necessary permitting. DOH-CWB Standard Comments are also available on the DOH-CWB website located at: http://health.hawaii.gov/cwb/.

DOH-CWB Standard Comments

The following information is for agencies and/or project owners who are seeking comments regarding environmental compliance for their projects with the Hawaii Administrative Rules (HAR), Chapters 11-53, 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program.

1. Any project and its potential impacts to State waters must meet the following criteria:

    a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.

    b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

    c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).

2. You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for point source water pollutant discharges into State surface waters (HAR, Chapter 11-55). Point source means any discernible, confined, and discrete conveyance from which pollutants are or may be discharged.

    For NPDES general permit coverage, a Notice of Intent (NOI) form must be submitted at least 30 calendar days before the commencement of the discharge. An application for a NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. To request NPDES permit coverage, you must submit the applicable form ("CWB Individual NPDES Form" or "CWB NOI Form") through the e-Permitting Portal and the hard copy certification statement with the respective filing fee ($1,000 for an individual NPDES permit or $500 for a Notice of General Permit Coverage). Please open the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool and locate the appropriate form. Follow the instructions to complete and submit the form.

    The DOH, Environmental Health Administration (EHA) e-Permitting Portal received Cross-Media Electronic Reporting Rule (CROMERR) certification by the Environmental Protection Agency (EPA) for electronic signature. Currently, Applicants and Permittees may now certify and submit EHA Electronic Signature Forms electronically through the EHA e-Permitting Portal without the need to physically send in an ink signature and CD/DVD/flash drive.

Beginning January 31, 2023, the DOH-CWB will only utilize electronic signature e-Permitting forms and discontinue the hard-copy signature forms. All hard-copy signature certification e-Permitting forms, including compliance forms, will be inactivated.

The electronic signature forms will require electronic signature approval to submit a form to the CWB. For details on how to obtain the electronic signature approval please visit CWB website located at: https://health.hawaii.gov/cwb/announcements/cwb-announces-new-requirement-for-electronic-signature-approval-for-all-submissions-beginning-january-31-2023/.

The NPDES NOI or application will be processed after the filing fees submitted and payable to the "State of Hawaii" in the form of a pre-printed check, cashier's check, money order, or as otherwise specified by the director is received by the CWB.

Some of the activities requiring NPDES permit coverage include, but, are not limited to:

a. Discharges of Storm Water.

   i. For Construction Activities Disturbing One (1) or More Acres of Total Land Area.

      By HAR Chapter 11-55, an NPDES permit is required before the start of the construction activities that result in the disturbance of one (1) or more acres of total land area, including clearing, grading, and excavation. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale.

   ii. For Industrial Activities for facilities with primary Standard Industrial Classification (SIC) Codes regulated in the Code of Federal Regulations (CFR) at 40 CFR 122.26(b)(14)(i) through (ix) and (xi). If a facility has more than one SIC code, the activity that generates the greatest revenue is the primary SIC code. If revenue information is unavailable, use the SIC code for the activity with the most employees. If employee information is also unavailable, use the SIC code for the activity with the greatest production.

   iii. From a small Municipal Separate Storm Sewer System (along with certain non-storm water discharges).

b. Discharges to State surface waters from construction activity hydrotesting or dewatering.

c. Discharges to State surface waters from cooling water applications.

d. Discharges to State surface waters from the application of pesticides (including insecticides, herbicides, fungicides, rodenticides, and various other substances to control pest) to State waters.

e. Well-Drilling Activities.

Any discharge to State surface waters of treated process wastewater effluent associated with well drilling activities is regulated by HAR Chapter 11-55. Discharges of treated process wastewater effluent (including well drilling slurries, lubricating fluids wastewater, and well purge wastewater) to State surface waters requires NPDES permit coverage.

NPDES permit coverage is not required for well pump testing. For well pump testing, the discharger shall take all measures necessary to prevent the discharge of pollutants from entering State waters. Such measures shall include, if necessary, containment of initial discharge until the discharge is essentially free of pollutants. If the discharge is entering a stream or river bed, best management practices (BMPs) shall be implemented to prevent the discharge from disturbing the clarity of the receiving water. If the discharge is entering a storm drain, the discharger must obtain written permission from the owner of the storm drain prior to discharge. Furthermore, BMPs shall be implemented to prevent the discharge from collecting sediments and other pollutants prior to entering the storm drain.

3. A Section 401 Water Quality Certification (WQC) may be required if your project/activity:

a. Requires a federal license or permit; and

b. May result in a discharge into waters of the United States (WOTUS).

"License or permit" means any permit, certificate, approval, registration, charter, membership, statutory exemption, or other form of permission granted by an agency of the federal government to conduct any activity which may result in any discharge.

The term “discharge” is defined in Clean Water Act, Subsections 502(16), 502(12), and 502(6).

Examples of “discharge” include, but are not limited to, allowing the following pollutants to enter WOTUS from the surface, or in-water: solid waste, rock/sand/dirt, heat, sewage, construction debris, any underwater work, chemicals, fugitive dust/spray paint, agricultural wastes, biological materials, industrial wastes, concrete/sealant/epoxy, and washing/cleaning effluent.

Determine if your project/activity requires a federal permit, license, certificate, approval, registration, or statutory exemption by contacting the appropriate federal agencies (e.g. Department of the Army (DA), U.S. Army Corps of Engineers (COE), Pacific Ocean Division Honolulu District Office (POH) Tel: (808) 835-4303; U.S. Environmental Protection Agency, Region 9 Tel: (415) 947-8021; Federal Energy Regulatory Commission Tel: (866) 208-3372; U.S. Coast Guard Office of Bridge Programs Tel: (202) 372-1511). If your project involves work in, over, or under waters of the United States, it is highly recommended that you contact the COE-POH regarding their DA permitting requirements.

To request an individual Section 401 WQC, you must complete and submit the Section 401 WQC application together with $1,000 filing fee made payable to the "State of Hawaii" in the form of a check or other method specified by the department. This application is available on the e-Permitting Portal website located at: https://eha-cloud.doh.hawaii.gov/epermit/.

The processing of a Section 401 WQC application will begin after the CWB has received filing fee. The processing of a Section 401 WQC application is also subject to the compliance with 40 CFR §121 requirements.

Beginning January 31, 2023, the DOH-CWB will only utilize electronic signature e-Permitting forms and discontinue the hard-copy signature forms. All hard-copy signature certification e-Permitting forms, including compliance forms, will be inactivated.

The electronic signature forms will require electronic signature approval to submit a form to the CWB. For details on how to obtain the electronic signature approval please visit CWB website located at: https://health.hawaii.gov/cwb/announcements/cwb-announces-new-requirement-for-electronic-signature-approval-for-all-submissions-beginning-january-31-2023/.

Please see HAR, Chapters 11-53 and 11-54 for the State's Water Quality Standards and for more information on the Section 401 WQC. HAR, Chapters 11-53 and 11-54 are available on the CWB website at: http://health.hawaii.gov/cwb/.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapters 11-53 and 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of $25,000 per day per violation and up to two (2) years in jail.

5. It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

   a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

   b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g. minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

   c. Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.

d. Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.

e. Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02
January 8, 2024

Mr. Darryl Lum
State of Hawai‘i
DOH - Clean Water Branch
2827 Waimano Home Road, Room 225
Pearl City, HI 96782

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Mr. Lum:

Thank you for your letter dated October 28, 2023, regarding the subject Early Consultation Package for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project. We acknowledge your comments which have been considered in the preparation of the Draft EA with regard to meeting content requirements prescribed in Hawai‘i Administrative Rules, Title 11, Chapter 200.1, Section 18. A record of your comments, along with this response, have been reproduced and are appended to the Draft EA in Appendix E.

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

JOSH GREEN, M.D.
GOVERNOR
STATE OF HAWAII
Ke Kia'āina o ka Moku'āina 'o Hawai'i

SYLVIA J. LUKE
LT. GOVERNOR
STATE OF HAWAII
Ka Hope Kia'āina o ka Moku'āina 'o Hawai'i

KALI WATSON
CHAIRMAN, HHC
Ka Luna Ho'okele

KATIE L. DUCATT
DEPUTY TO THE CHAIRMAN
Ka Hope Luna Ho'okele

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
Ka 'Oihana 'Āina Ho'opulapula Hawai'i
P. O. BOX 1879
HONOLULU, HAWAII 96805

October 27, 2023

ref: PO-23-186

Keola Cheng
Director – Planning
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawai'i 96826

Subject: Environmental Assessment (EA) Early Consultation for
Hilo Wastewater Treatment Plant Improvements
Tax Map Key (TMK): 2-1-013:002 por; Hilo, Hawai'i Island, Hawai'i

Aloha Mr. Cheng:

Mahalo for the opportunity to provide comments during early consultation for your preparation of a Draft Environmental Assessment (EA) for the proposed Hilo Wastewater Treatment Plant (WWTP) Improvements project (Proposed Project) located in Hilo on the island of Hawai'i. The Department of Hawaiian Home Lands has the following comments:

1. **Please consult with DHHL beneficiaries in the surrounding Hilo area**, including the following associations: Keaukaha Community Association, Pana'ewa Hawaiian Home Lands Community Association, Keaukaha-Pana'ewa Farmer's Association, and Mālama ka 'Āina Hana ka 'Āina (MAHA). In addition to these associations in the immediate surrounding area, we have the following associations that are considered in the DHHL East Hawai'i Region: Pi'ihonua Hawaiian Homestead Association, Kaūmana Hawaiian Homes Community Association, and Māku'u Farmer's Association.

2. **Please include the study of the impacts of the outfall of treated wastewater currently discharged into Puhi Bay on the surrounding coastal and marine environment, as well as impacts to persons who are exposed to this outfall.** Please take a special look at any impacts to traditional and customary practices along the shoreline such as: swimming, fishing, diving, gathering limu, 'opihi, hā'uke'uke, etc.

3. **Review of potential impacts from the proposed project should include fulfillment of analysis of the Ka Pa'akai Framework.** Article XII, Section 7 of the Hawai'i Constitution describes protections for the rights of native tenants. This section of the Constitution states that government agencies in Hawai'i are obligated

to protect the reasonable exercise of these rights of the native people of Hawai‘i to the extent feasible, and that agencies are obligated to make an assessment of the impacts on these rights and practices for proposed actions, such as this proposed project. Please review the Ka Pa‘akai Framework and ensure that fulfilment of the Ka Pa‘akai Framework is completed, including robust consultation with native practitioners in the surrounding areas of Keaukaha, Pana‘ewa and King’s Landing.

4. **Please include analysis of environmental impacts from flood hazards at the Wastewater Treatment Plant, especially in heavy rainfall events where overflow of wastewater containment areas is a potential risk.** This analysis should include ways to mitigate overflow and spillage of solid waste and wastewater onto the grounds and the seepage of this untreated waste into the surrounding drainage and floodways.

5. **Please comment on how the proposed action will impact DHHL’s regional plans and the DHHL Hawai‘i Island Plan.** There are existing DHHL regional plans for Keaukaha & Pana‘ewa, as well as Māku‘u and Kaūmana & Pi‘ihonua for East Hawai‘i. The current DHHL Hawai‘i Island Plan was completed in 2002. DHHL is in the process of updating this plan and is expected to be completed in 2025. All of these plans are available online at: https://dhhl.hawaii.gov/po/hawaii-island/.

Mahalo for the opportunity to provide comments in your early consultation process. For any questions or comments, please contact Lilliane Makaila, Planner in the DHHL Planning Office at lilliane.k.makaila@hawaii.gov.

Aloha,

Kali Watson

Kali Watson, Chairman
Hawaiian Homes Commission

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02

January 8, 2024

Mr. Kali Watson
P.O. Box 1879
Honolulu, HI 96805

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Mr. Watson:

Thank you for your letter dated October 27, 2023, regarding the subject Early Consultation Package for the Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project. We acknowledge your comments which have been considered in the preparation of the Draft EA with regard to meeting content requirements prescribed in Hawai‘i Administrative Rules, Title 11, Chapter 200.1, Section 18. A record of your comments, along with this response, have been reproduced and are appended to the Draft EA in Appendix E.

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

From: Antoinette Almeida <kumukauilani@gmail.com>
Sent: Tuesday, October 10, 2023 3:20 PM
To: Public Comment
Subject: TMK 3-1-2-103:002 EA for the proposed Hilo Wastewater Treatment Plan (WWTP)Improvements project

For public comment.

My name is Kauilani Almeida. I am a native Hawaiian beneficiary living on lands status HHCA 1920 amended in Panaewa located in the district of Waiakea. In my youth I was raised by my Grandmother Mabel Godoy, sampan bus driver, in Keaukaha on Krauss Avenue. When the State Department of Transportation needed to extend the airport runway to increase flights to Hilo Airport transporting people as well as for increase in deliveries by air, my Grandma Mabel was given a piece of land and a house in Panaewa located on Mikioi Street.

While growing up in Keaukaha, we had to endure the smell of the Wastewater Facility located on front street (Puhi Bay) and also put up with the jokes that " oh, you stay live Keaukaha, I smelled you before I saw you." Even though our home was located near the runway, when the onshore winds blew it brought the smell all the way to our hale", I NEVER GOT Used TO THAT SMELL. I was too young to bother with it because my mind was more on play, but the jokes never stopped it just got more meaning as I got older. Around 1990 UH -Hilo assumed the lease for the property and in 1990, as stated in your report, the wastewater facility was moved ma uka to the present site except the Pua station.

Fast forward to February 2023.

I was invited to visit the Wastewater Facility located at its present location and saw the reasons why the Facilities need to be rehabilitated and replaced (page 2 (3)paragraph#3. On (page 2(3)paragraph #2 I saw first hand, the INABILITY to provide a safe working environment for operations and maintenance staff.

However, this is HHCA beneficiaries' concern, there is nothing in this EA that addresses the Keaukaha shoreline being impacted by the Pua Station where the LAST DISCHARGE of waste is being pipe through a 3/4 mile pipe on the oceanside of the break wall. This discharge has had many breaches enough that it has polluted the Keaukaha shoreline. Where we used to gather ocean foods from the coastline, rare sightings of gatherers on the laupapa, lawai'a throwing net, entire families enjoying the ocean are less compared to when my grandmother resided in Keaukaha.

A "Save Puhi Bay and Keaukaha Shoreline Initiative" for and by HHCA homestead beneficiaries and wait listers need to be part of THE solution to recalibrate the current Wastewater facility to a zero waste Facility that will produce environmentally safe by products and more. How can we join forces to make this happen for the future generations.

WILSON OKAMOTO CORPORATION
INNOVATORS • PLANNERS • ENGINEERS

10698-02
December 8, 2023

Ms. Kauilani Almeida
kumukauilani@gmail.com

Subject: Environmental Assessment Early Consultation for the
Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project
Hilo, Hawai‘i Island, Hawai‘i

Dear Ms. Almeida:

Thank you for your e-mail dated October 10, 2023, regarding the subject Early Consultation Package.. We acknowledge your comments which have been considered in the preparation of the Draft EA with regard to meeting content requirements prescribed in Hawai‘i Administrative Rules, Title 11, Chapter 200.1, Section 18. A record of your comments, along with this response, have been reproduced and are appended to the Draft EA in Appendix E.

Please note that the Draft EA has been published and made available for review, and comment in the current issue of the State of Hawai‘i’s Environmental Review Program’s (ERP) The Environmental Notice.

We appreciate your participation in the EA review process.

Sincerely,

Keola Cheng

Keola Cheng
Director - Planning

cc: Mr. Mark Grant, County of Hawaii Department of Environmental Management
Mr. Gary Deis, Carollo Engineers

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CORPORATION

Draft Environmental Assessment

Hilo Wastewater Treatment Plant Rehabilitation and Replacement Project Hilo, Hawai‘i

Wilson Okamoto Corporation
Carollo Engineers