

Draft Environmental Assessment for the

# Wahiawa Wastewater Treatment Plant Modifications

Contract No. F87772  
Project No. 02046



Prepared for:  
**City and County of Honolulu**  
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January 2008



# Draft Environmental Assessment

## WAHIAWA WASTEWATER TREATMENT PLANT MODIFICATIONS

Wahiawa, Oahu, Hawaii

(This environmental document has been prepared pursuant to  
Chapter 343, Hawaii Revised Statutes)

Responsible Officer: \_\_\_\_\_



Eugene C. Lee, P.E., Director  
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Date: \_\_\_\_\_

01/23/08

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## TABLE OF CONTENTS

	<u>page</u>
Executive Summary .....	<i>vii</i>
Project Summary .....	<i>ix</i>
1. Introduction .....	1-1
2. Setting and Project Description .....	2-1
2.1. Project Need and Objectives .....	2-1
2.1.1. Project Need .....	2-1
2.1.2. Project Objectives .....	2-3
2.2. Project Location, Vicinity, and Conditions .....	2-4
2.2.1. Project Location .....	2-4
2.2.2. Land Ownership .....	2-4
2.2.3. Surrounding Uses, Tenants, and Structures .....	2-4
2.2.4. Existing Wahiawa Wastewater Treatment Plant Conditions .....	2-7
2.3. Description of Project .....	2-15
2.3.1. Proposed Action .....	2-15
2.3.2. Additional Considerations .....	2-20
2.3.3. Project Schedule and Construction Cost .....	2-21
3. Description of the Existing Environment, Project Impacts, and Mitigation Measures .....	3-1
3.1. Climate .....	3-1
3.2. Geology and Soils .....	3-1
3.3. Topography .....	3-6
3.4. Groundwater .....	3-7
3.5. Surface Waters .....	3-8
3.6. Flood, Tsunami, and Earthquake Hazards .....	3-10
3.7. Floral and Faunal Resources .....	3-13
3.8. Air Quality .....	3-15
3.9. Surface Water Quality .....	3-20
3.10. Noise .....	3-23
3.11. Archaeological and Cultural Resources .....	3-27
3.12. Visual Resources .....	3-29
3.13. Socio-Economic Characteristics .....	3-30
3.13.1. Existing Businesses and Surrounding Uses .....	3-30
3.13.2. Police, Fire and Ambulance Service .....	3-33
3.14. Infrastructure and Utilities .....	3-34
3.14.1. Roadways and Traffic Considerations .....	3-34
3.14.2. Water System .....	3-37
3.14.3. Drainage System .....	3-38
3.14.4. Wastewater System .....	3-40

3.14.5.	Electrical, Telephone, Cable, and Gas Service .....	3-41
4.	Relationship to Plans, Policies, and Controls .....	4-1
4.1.	State Land Use District .....	4-1
4.2.	Hawaii State Plan .....	4-1
4.3.	City and County of Honolulu General Plan .....	4-2
4.4.	Central Oahu Sustainable Communities Plan .....	4-4
4.5.	City and County of Honolulu Land Use Ordinance .....	4-6
4.6.	State Coastal Zone Management Program .....	4-7
5.	Alternatives to the Proposed Action .....	5-1
5.1.	No-Action Alternative .....	5-1
5.2.	Alternatives Analysis Report Alternatives .....	5-1
5.2.1.	Process-Specific Alternatives .....	5-1
5.2.1.1.	Headworks .....	5-2
5.2.1.2.	Influent Pump Station .....	5-5
5.2.1.3.	Flow Equalization .....	5-7
5.2.1.4.	Primary Clarification .....	5-8
5.2.1.5.	Secondary Treatment .....	5-9
5.2.1.6.	Secondary Clarification .....	5-10
5.2.1.7.	Tertiary Filtration .....	5-10
5.2.1.8.	Disinfection .....	5-11
5.2.1.9.	Solids Handling .....	5-12
5.2.1.10.	Odor Control .....	5-14
5.2.2.	Cohesive Project Alternatives .....	5-16
5.2.2.1.	Cohesive Project Alternative 1 – Pump Station Upgrades Only .....	5-16
5.2.2.2.	Cohesive Project Alternative 2 – Upgrade Treatment Using Existing Processes .....	5-17
5.2.3.	Evaluation of Cohesive Project Alternatives .....	5-18
6.	Required Permits and Approvals .....	6-1
6.1.	State of Hawaii .....	6-1
6.2.	City and County of Honolulu .....	6-1
7.	Anticipated Determination .....	7-1
8.	Consultation .....	8-1
8.1.	Pre-Assessment Consultation .....	8-1
8.2.	Draft Environmental Assessment Consultation .....	8-4
9.	References .....	9-1

**LIST OF TABLES**

Table 1 Comparison of Cohesive Project Alternatives ..... 5-19

**LIST OF FIGURES**

Figure 1 Location Map ..... 1-3  
Figure 2 Tax Map Keys ..... 2-5  
Figure 3 Vicinity Map ..... 2-9  
Figure 4 Wahiawa Collection System ..... 2-11  
Figure 5 Site Layout ..... 2-13  
Figure 6 Proposed Project Facilities ..... 2-17  
Figure 7 Soil Types ..... 3-3  
Figure 8 Flood Zone Designation Map ..... 3-11  
Figure 9 Cohesive Project Alternative 1 Facilities ..... 5-21  
Figure 10 Cohesive Project Alternative 2 Facilities ..... 5-23

**LIST OF APPENDICES**

Appendix A Neighborhood Board No.26, Wahiawa/Whitmore Village December 12, 2007 “Special Meeting” Agenda .....A-1  
Appendix B Pre-Assessment Consultation Correspondence .....B-1

## LIST OF ABBREVIATIONS

<u>Abbreviation</u>	<u>Definition</u>
%	percent
ADWF	Average dry weather flow
BMPs	Best Management Practices
BWS	City and County of Honolulu, Board of Water Supply
City	City and County of Honolulu
COWFP	Central Oahu Wastewater Facilities Plan
CZM	Coastal Zone Management
DAF	Dissolved air flotation
dBA	A-weighted decibel
DDC	City and County of Honolulu, Department of Design and Construction
DLNR	State of Hawaii, Department of Land and Natural Resources
DOH	State of Hawaii, Department of Health
DPP	City and County of Honolulu, Department of Planning and Permitting
DTS	City and County of Honolulu, Department of Transportation Services
EA	Environmental Assessment
EIS	Environmental Impact Statement
ENV	City and County of Honolulu, Department of Environmental Services
EPA	U.S. Environmental Protection Agency
FC	Final clarifier
FONSI	Finding of No Significant Impact
GBT	Gravity belt thickener
HAR	Hawaii Administrative Rules
HECO	Hawaiian Electric Company, Inc.
HPD	City and County of Honolulu, Honolulu Police Department
HRS	Hawaii Revised Statutes
IPS	Influent pump station
MBR	Membrane bioreactor
mg/L	milligrams per liter
mgd	million gallons per day
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NaOH	Sodium hydroxide
NCTAMS PAC	Naval Computer and Telecommunications Master Station Pacific
NPDES	National Pollutant Discharge Elimination System
NTU	nephelometric turbidity units
Oceanic	Oceanic Time Warner Cable

**LIST OF ABBREVIATIONS (Continued)**

<b><u>Abbreviation</u></b>	<b><u>Definition</u></b>
PIM	Public Infrastructure Map
R-1	DOH Class 1 recycled water
SAAQS	State Ambient Air Quality Standards
State	State of Hawaii
TDH	Total dynamic head
TMDL	Total Maximum Daily Load
TMK	Tax Map Key
UBC	Uniform Building Code
UV	Ultraviolet
VFD	Variable frequency drive
WAS	Waste activated sludge
WaA	Wahiawa silty clay
WWTP	wastewater treatment plant

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## **EXECUTIVE SUMMARY**

The City and County of Honolulu, Department of Design and Construction proposes to improve a portion of the City and County of Honolulu's (City's) existing Wahiawa Wastewater Treatment Plant (WWTP) located in Wahiawa, Oahu, Hawaii. The Wahiawa WWTP is part of the City's municipal wastewater collection system and is located on a 6.1-acre parcel owned by the City (Tax Map Key: 7-3-07:002). Constructed in 1927, the WWTP currently serves the communities of Wahiawa and Whitmore Village and the U.S. Navy's Naval Computer and Telecommunications Master Station Pacific.

Under a May 15, 1995 Consent Decree Civil No. 94-00765 DAE between the City, State of Hawaii's Department of Health (DOH), and the U.S. Environmental Protection Agency, the City developed a study that recommended projects for the Wahiawa WWTP. As a result, a Draft Engineering Report was initially prepared in support of the Wahiawa WWTP Influent Pump Station (IPS) Upgrade and Equalization Facility project. In the intervening time since the initial submittal of the report, it was recognized that changes in the City's wastewater disposal situation and wastewater treatment regulations might impact the recommendations in the report. It was therefore decided to prepare an Alternatives Analysis Report to review potential improvements to the entire plant and determine how best to implement IPS upgrades and flow equalization without interfering with future improvements. Hence, the proposed project (titled as the Wahiawa WWTP Modifications project for purposes of this Environmental Assessment [EA]) was initiated to address existing and future deficiencies (as projected through 2020) at the Wahiawa WWTP, while also taking into account that future improvements are planned for the facility.

The specific objectives of the proposed project are to restore hydraulic capacity, improve wastewater treatment reliability, produce DOH Class 1 recycled water (R-1) quality water, and meet regulatory compliance requirements. A number of process-specific alternatives that could be used to address the identified problems at the plant, which were then combined into cohesive project alternatives, were evaluated for the proposed WWTP improvements. Based on the evaluation, conversion of the plant's existing treatment equipment to membrane bioreactor technology is proposed for the WWTP improvement project. This proposed action covers both "front-end" (preliminary treatment and storage processes) and "back-end" (all treatment processes following preliminary treatment) improvements because the City needs to fund the proposed project in phases. Moreover, the goal behind developing both front-end and back-end improvements is to maximize the City's capital investment by reducing the amount of "re-work" that would be needed when the back-end improvements are implemented.

The proposed project is not anticipated to result in significant short-term or long-term impacts. Temporary short-term impacts to air and water quality, ambient noise levels, and traffic operations may occur during construction activities. In the long-term, the proposed project will contribute to increased environmental quality and have beneficial impacts. Such beneficial impacts include improved treatment reliability, reduced potential for sanitary sewer overflows, and enhanced effluent quality.

The proposed WWTP improvement project is not expected to have a significant impact on any environmental, cultural, social or economic resources based on the criteria set forth in Section 12 of DOH Rules, Title 11, Chapter 200, Hawaii Administrative Rules (HAR). A Finding of No Significant Impact determination is anticipated.

This Draft EA has been prepared in accordance with the requirements of Chapter 343, Hawaii Revised Statutes (HRS) and associated Title 11, Chapter 200, HAR of the DOH Rules. The project would use City funds and lands and, therefore, requires the preparation of an EA pursuant to Chapter 343, HRS and associated Title 11, Chapter 200, HAR.

**PROJECT SUMMARY**

<b>Proposing Agency:</b>	City and County of Honolulu, Department of Design and Construction
<b>Approving Agency:</b>	City and County of Honolulu, Department of Design and Construction
<b>Location:</b>	Wahiawa, Oahu, Hawaii
<b>Tax Map Key:</b>	7-3-07:002
<b>Land Area:</b>	6.1 acres
<b>Recorded Fee Owner:</b>	City and County of Honolulu
<b>Existing Use:</b>	Industrial (i.e., wastewater treatment plant)
<b>State Land Use Classification:</b>	Urban District
<b>Development Plan Area:</b>	Central Oahu
<b>Development Plan Land Use Designation:</b>	Agriculture and Preservation Areas, with a symbol for an existing wastewater treatment plant
<b>County Zoning Designation:</b>	I-2 Intensive Industrial
<b>Proposed Action:</b>	The City and County of Honolulu, Department of Design and Construction proposes to improve a portion of the City and County of Honolulu's existing Wahiawa Wastewater Treatment Plant (WWTP) located in Wahiawa, Oahu, Hawaii. The proposed WWTP improvement project includes the upgrade of the existing influent pump station and establishment of adequate flow equalization facilities, as well as incorporation of future planned improvements. The proposed project seeks to address existing and future deficiencies (as projected through 2020) at the Wahiawa WWTP, while also taking into account that future improvements are planned for the

facility. Specifically, the objectives of the proposed project are to restore hydraulic capacity, improve wastewater treatment reliability, produce Department of Health Class 1 recycled water (R-1) quality water, and meet regulatory compliance requirements.

**Impacts:**

Temporary short-term impacts to air and water quality, ambient noise levels, and traffic operations may occur during construction of the proposed project. Such potential short-term impacts that may be incurred as a result of construction activities are not expected to be significant. Additionally, there are no significant adverse long-term impacts to any environmental, cultural, social or economic resources associated with the completion and operation of the proposed WWTP project. Conversely, in the long-term, the proposed project will contribute to increased environmental quality and have beneficial impacts, such as improved treatment reliability, reduced potential for sanitary sewer overflows, and enhanced effluent quality.

**Anticipated  
Determination:**

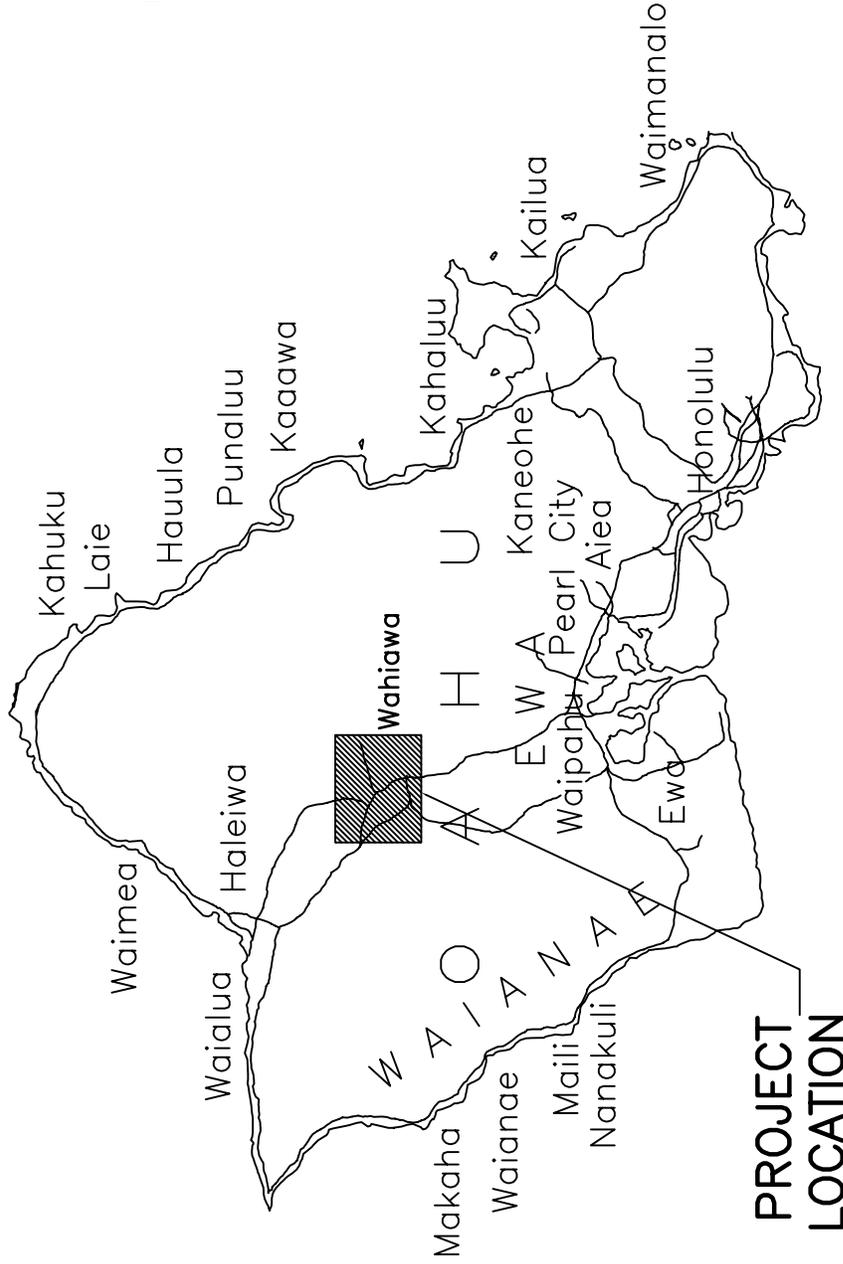
Finding of No Significant Impact (FONSI)

## **1. INTRODUCTION**

The City and County of Honolulu, Department of Design and Construction (DDC) proposes to improve a portion of the City and County of Honolulu's (City's) existing Wahiawa Wastewater Treatment Plant (WWTP) located in Wahiawa, Oahu, Hawaii (**Figure 1**). The proposed WWTP improvement project includes the upgrade of the existing influent pump station (IPS) and establishment of adequate flow equalization facilities, as well as incorporation of future planned improvements. The proposed project was initiated to address existing and future deficiencies (as projected through 2020) at the Wahiawa WWTP, while also taking into account that future improvements are planned for the facility.

This Draft Environmental Assessment (EA) was prepared pursuant to the State of Hawaii (State) environmental review process as required and defined by Chapter 343, Hawaii Revised Statutes (HRS) and Title 11, Chapter 200, Hawaii Administrative Rules (HAR) of the State of Hawaii, Department of Health (DOH) Rules. The project would use City funds and lands and, therefore, requires the preparation of an EA pursuant to Chapter 343, HRS and associated Title 11, Chapter 200, HAR.

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FIGURE

1

LOCATION MAP

WAHIAWA WWTP MODIFICATIONS

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## 2. SETTING AND PROJECT DESCRIPTION

### 2.1. Project Need and Objectives

#### 2.1.1. Project Need

Under a May 15, 1995 Consent Decree Civil No. 94-00765 DAE between the City, DOH, and the U.S. Environmental Protection Agency (EPA), the City developed a *Sewer Rehabilitation and Infiltration & Inflow Minimization Study* (Fukunaga and Associates, 1999) that recommended the projects below for the Wahiawa WWTP. The design peak wet weather flow for the Wahiawa WWTP was determined to be 10.16 million gallons per day (mgd). A project to install an equalization basin was recommended to reduce peak flows to match the plant's existing wet weather capacity of 6.5 mgd. This proposed project was reviewed and approved by the EPA in accordance with the 1995 Consent Decree.

- Modification of the IPS influent channel to enable bypassing of excess flows and to receive return flows from storage,
- Demolition of the abandoned Final Clarifier (FC) No. 2 to accommodate construction of a new 368,000-gallon storage tank equipped with return flow pumps,
- Expansion of the IPS capacity to approximately 7.0 mgd, and
- Installation of piping and appurtenances between the new storage tank and IPS.

As a result, the Wahiawa WWTP IPS Upgrade and Equalization Facility project was contracted to evaluate the requirements described above. In support of the Wahiawa WWTP IPS Upgrade and Equalization Facility project, a Draft Engineering Report was prepared. In the intervening time since the initial submittal of the report (August 2002), it was recognized that changes in the City's wastewater disposal situation and wastewater treatment regulations might impact the recommendations in the report. It was therefore decided to prepare an Alternatives Analysis Report that reviewed potential improvements to the entire plant to determine how best to implement IPS upgrades and flow equalization without interfering with future improvements. Hence, the proposed Wahiawa WWTP Modifications project (as titled for purposes of this EA) was initiated to address existing and future deficiencies (as projected through 2020) at the Wahiawa WWTP, while also taking into account that future improvements are planned for the facility.

Furthermore, the Alternatives Analysis Report has strong ties to the Central Oahu Wastewater Facilities Plan (COWFP) and its supporting Environmental Impact Statement (EIS), which are being prepared concurrently with the Alternatives Analysis Report. The COWFP and its supporting EIS will present and evaluate alternatives for improvements throughout the Wahiawa

wastewater treatment system pertaining to the collection system, Wahiawa WWTP, and the system's long-term effluent disposal strategy in order to address the wastewater system goals and objectives listed in the COWFP. The COWFP and its supporting EIS, however, will not recommend specific Wahiawa WWTP improvements. It was decided that recommended WWTP improvements can only be determined after a more thorough investigation of existing conditions, project requirements, and analyses of possible design alternatives. As a result, it was concluded that the Alternatives Analysis Report should be utilized to conduct further studies and investigations, evaluate specific Wahiawa WWTP improvement alternatives, and determine which of the potential improvements to the entire WWTP should be employed. Hence, the Alternatives Analysis Report is being prepared in support of the proposed Wahiawa WWTP Modifications project.

The primary purpose of the proposed WWTP improvement project is to address existing and future deficiencies (as projected through 2020) at the Wahiawa WWTP, while also taking into account that future improvements are planned for the facility. Hydraulic deficiencies could cause sanitary sewer overflows (SSOs) during rain events, which result in risks to public health and safety. SSO events are violations of the federal Clean Water Act. Additionally, remedying deficiencies is also required as part of the May 15, 1995 Consent Decree.

However, as previously mentioned, the improvements for hydraulic deficiencies must also consider that future improvements are planned for the Wahiawa WWTP facility. Specifically, the City is interested in producing "DOH Class 1 recycled water (R-1) quality" recycled water for distribution and delivery by the Honolulu Board of Water Supply (BWS). The proposed WWTP improvement project should allow the City to reliably produce R-1 quality water in order to facilitate the BWS' distribution of recycled water for applications approved by the DOH May 15, 2002 *Guidelines for the Treatment and Use of Recycled Water* (referred to herein as the 2002 water reuse guidelines), such as irrigation of golf courses, parks, school yards, and athletic fields. R-1 applications are the most liberal use of recycled water recognized by DOH.

Given the City's desire to enhance effluent quality for distribution and R-1 application, an additional purpose and need of the proposed WWTP improvement project is to make the Wahiawa WWTP compliant with the R-1 quality effluent requirements as defined in the 2002 water reuse guidelines and obtain certification as an R-1 quality WWTP by DOH. Although a tertiary treatment upgrade was completed in 2002, the upgraded plant was intended to produce recycled water in compliance with the March 1998 Consent Decree. The design was intended to follow the DOH *Guidelines for the*

*Treatment and Use of Reclaimed Water*, dated November 22, 1993 and improve the effluent water quality to meet the 1993 R-1 reclaimed water quality guidelines. Currently, the Wahiawa WWTP does not meet R-1 quality effluent requirements and cannot be certified by DOH as an R-1 WWTP, as defined in DOH's 2002 water reuse guidelines.

Overall, enhancement of the effluent quality would benefit the downstream users: both reservoir users as well as potential direct recycled water users. The use of recycled water, if diverted from the Wahiawa WWTP and transported to an off-site application, would allow the City to significantly reduce wastewater flow volumes into the Wahiawa Reservoir. However, it should be noted that complete elimination of reservoir discharges cannot be achieved because of the need for an alternative disposal point when recycled water demands drop off due to seasonal variations. Furthermore, the impending implementation of total maximum daily loads (TMDLs) by DOH on the Wahiawa Reservoir could bring additional discharge limits such as nitrogen and phosphorous that are not currently in place. Therefore, the improvements to address hydraulic deficiencies should be consistent with the implementation of improvements necessary to provide R-1 treatment.

It is important to note that the long-term effluent disposal strategies associated with the Wahiawa WWTP, including disposal and/or distribution of recycled water, are being presented and evaluated in the aforementioned COWFP and its supporting EIS. Regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, WWTP improvements are needed and intended to occur. Hence, details regarding the disposal and/or distribution of recycled water are not being discussed and evaluated herein as components of the proposed WWTP improvement project. The proposed improvements include treatment upgrades required to produce R-1 quality water and meet Consent Decree requirements.

### **2.1.2. Project Objectives**

The proposed project seeks to address existing and future deficiencies (as projected through year 2020) at the Wahiawa WWTP, while also taking into account that future improvements are planned for the facility. Specifically, the proposed WWTP improvement project aims to achieve the following objectives:

- Restore hydraulic capacity,
- Improve wastewater treatment reliability,
- Produce R-1 quality water, and
- Comply with regulatory requirements.

## **2.2. Project Location, Vicinity, and Conditions**

### **2.2.1. Project Location**

The proposed project is located entirely at the site of the Wahiawa WWTP in Wahiawa Town, Oahu, Hawaii (**Figure 1**). The WWTP is located on a 6.1-acre parcel at 111 California Avenue, within Tax Map Key (TMK) 7-3-07:002 (**Figure 2**). The project site has a private entrance driveway, with access off of California Avenue. The project site is bounded by the Wahiawa Reservoir to the west and south, the City's Wahiawa Corporation Yard to the east, and several privately-owned parcels with residential dwellings to the north. Fencing surrounds the boundaries of the entire project site.

### **2.2.2. Land Ownership**

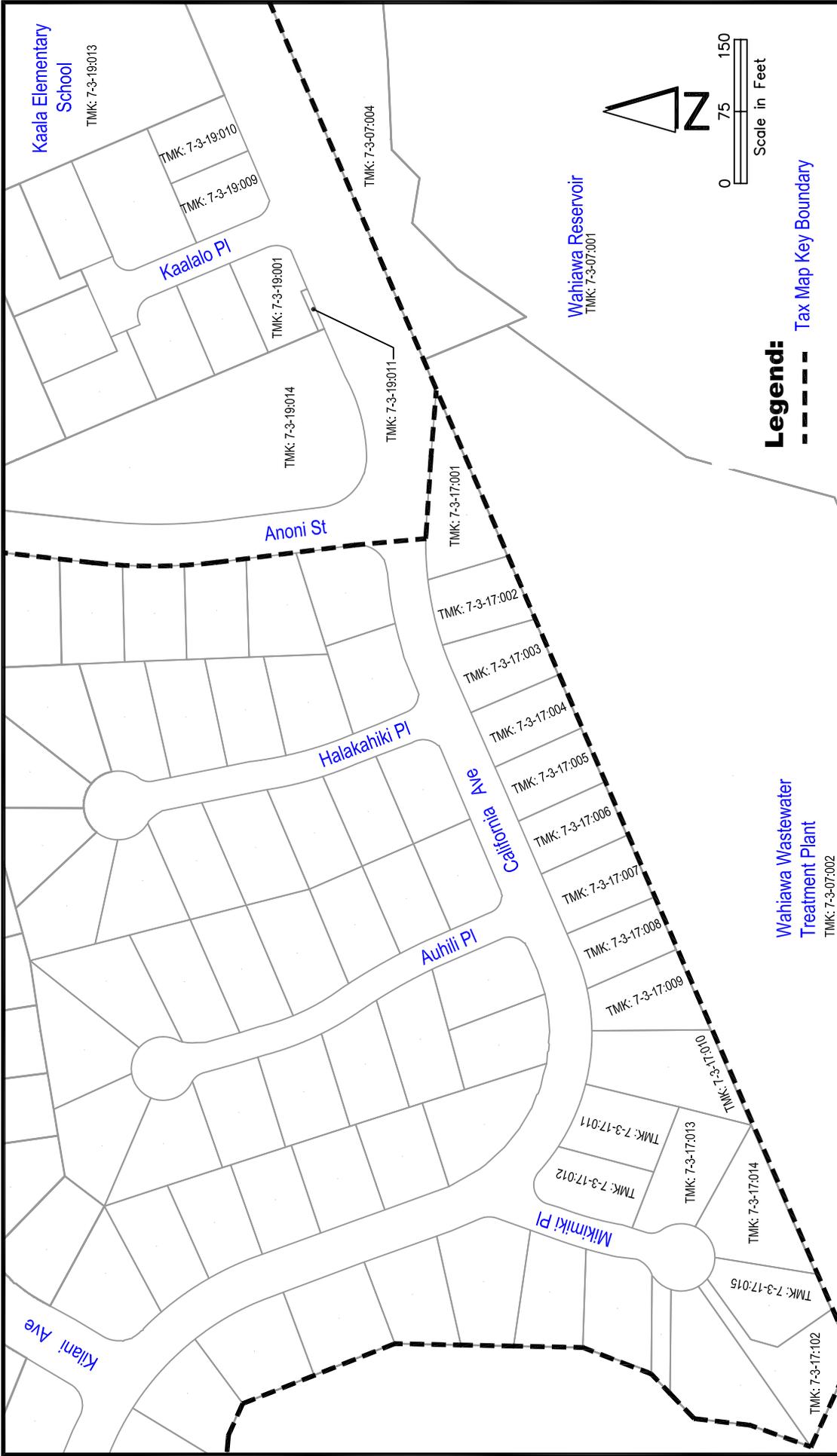
As previously stated, the proposed project will occur entirely at the site of the Wahiawa WWTP. The Wahiawa WWTP is located on a parcel owned by the City; therefore, the portions of the project site that would be affected by the proposed WWTP improvement project are under the jurisdiction of the City.

### **2.2.3. Surrounding Uses, Tenants, and Structures**

The Wahiawa WWTP is generally located in an area characterized by single-family homes, with some institutional and industrial uses in the immediate vicinity. Immediately adjacent to and sharing the site's northern boundary are several privately-owned parcels with residential dwellings. The Olive United Methodist Church, a small residential cul-de-sac, and Kaala Elementary School are located directly opposite and north of the entrance to the WWTP. Various City and State corporation and base yards are located east of the Wahiawa WWTP, along California Avenue.

The project site is bounded by the Wahiawa Reservoir to the west and south. Overall, the Wahiawa Reservoir is approximately 300 acres. The reservoir receives water from and overflows into Kaukonahua Stream, which outlets at Kaiaka Bay on the North Shore. The Wahiawa Reservoir also receives treated effluent from the Wahiawa WWTP.

Originally, the Wahiawa Reservoir Dam was built between 1905 and 1906 in order to establish the reservoir for irrigation purposes. Other activities and benefits have since been derived from the dam and the reservoir. For example, public benefits have included treated effluent disposal, flood control, stormwater drainage, sediment control, and recreational fishing. The reservoir is considered a valuable recreational resource and includes both the Wahiawa Public Fishing Area and the Wahiawa Freshwater Park.



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**TAX MAP KEYS**

WAIHAWA WWTP MODIFICATIONS

FIGURE 2

Source: GIS Map, Department of Planning and Permitting  
City and County of Honolulu

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The Wahiawa Corporation Yard adjoins the WWTP site on the east. The corporation yard is used by the BWS and under the jurisdiction of the City.

**Figure 2** presents the location and TMKs of the neighboring properties.

#### **2.2.4. Existing Wahiawa Wastewater Treatment Plant Conditions**

The DDC is responsible for the planning, design, and construction of municipal wastewater facilities and systems on the island of Oahu. The City and County of Honolulu, Department of Environmental Services (ENV; formerly the Department of Wastewater Management) is responsible for the control, management, operation, and maintenance of these facilities. Specific to the proposed project, ENV and its staff manage, maintain, and operate the Wahiawa WWTP.

The Wahiawa WWTP is part of the City's municipal wastewater collection system, and serves the communities of Wahiawa and Whitmore Village and the U.S. Navy's Naval Computer and Telecommunications Master Station Pacific (NCTAMS PAC). **Figure 3** shows the general service area of the Wahiawa WWTP. This Wahiawa wastewater service area encompasses a total of approximately 1,610 acres. Through the year 2020, no significant changes in population or growth are projected for the Wahiawa service area.

The Wahiawa wastewater collection system consists of gravity sewers, pumping stations, and force mains that collect and convey wastewater from the various parcels in the service area to the Wahiawa WWTP. The general layout of the Wahiawa wastewater collection system is shown on **Figure 4**. Currently, an average of approximately 2.0 mgd of wastewater is collected and conveyed to the Wahiawa WWTP. An average flow of about 0.5 mgd is contributed by Whitmore Village, including approximately 0.12 mgd from the NCTAMS PAC.

The Wahiawa WWTP is part of the City's municipal wastewater collection system and was constructed in 1927. Since its construction, effluent from the plant has been discharged into Wahiawa Reservoir. Originally a primary treatment plant, the Wahiawa WWTP has undergone a number of improvements—most notably a secondary treatment upgrade in 1967 and a tertiary treatment upgrade completed in December 2002. The tertiary treatment upgrade included such things as new secondary clarification, adding a sand filtration and ultraviolet (UV) disinfection processes, a new deep-water outfall into Wahiawa Reservoir, solids handling upgrades, and a new operations building. A current layout of the plant is presented in **Figure 5**.

The Wahiawa WWTP is currently designed for an average dry weather flow (ADWF) of 2.5 mgd. As stated above, its present dry weather daily flow is approximately 2.0 mgd (or less than 80 percent [%] of its design capacity) of domestic wastewater from the Wahiawa collection system. There is no growth planned for Wahiawa.

The principal unit operations and processes at the Wahiawa WWTP are preliminary treatment, primary sedimentation, aeration, secondary clarification, filtration, disinfection, and solids handling. Primary sludge and waste activated sludge (WAS) are thickened using dissolved air flotation and then hauled by truck to the Honouliuli WWTP in Ewa Beach, where it undergoes stabilization and dewatering prior to being trucked to a landfill. Treated effluent is discharged into the Wahiawa Reservoir via the new deep-water outfall. An emergency diesel generator is used to power the Wahiawa WWTP during outages.

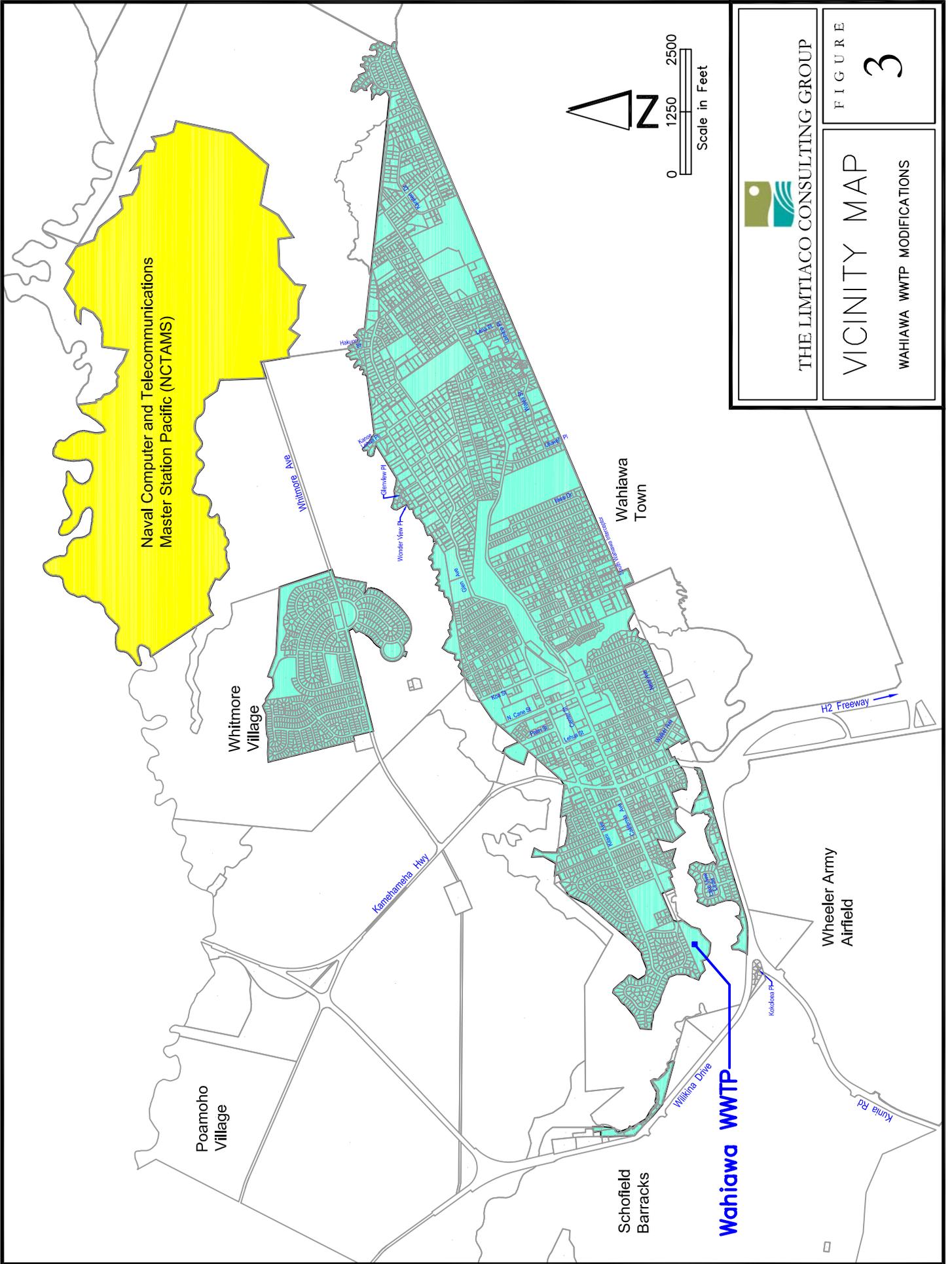
As previously mentioned, the proposed project was initiated to address existing and future deficiencies (as projected through 2020) at the Wahiawa WWTP, while also taking into account that future improvements are planned for the facility. Below is a list of the problems and deficiencies at the Wahiawa WWTP that were identified in support of the proposed WWTP improvement project as part of the Alternatives Analysis Report. The problems and deficiencies listed below are broken out by "front-end" (preliminary treatment and storage processes) and "back-end" (all processes treatment following preliminary treatment).

#### **Front-end Problems/Deficiencies.**

- Inadequate flow equalization for peak flow.
- Influent sampler and flow meter are at separate locations.
- IPS performs below rated pump capacity based on drawdown testing.
- IPS has an undersized wet well.
- Comminutors are not flush with the influent channel, which causes the accumulation of grit and solids within the channel where influent sampling occurs.
- No grit removal (which is required if membrane bioreactor [MBR] is implemented).
- No coarse or fine screens (fine screens are required if MBR is implemented).
- No odor control (if grit removal and coarse/fine screening occurs).

#### **Back-end Problems/Deficiencies.**

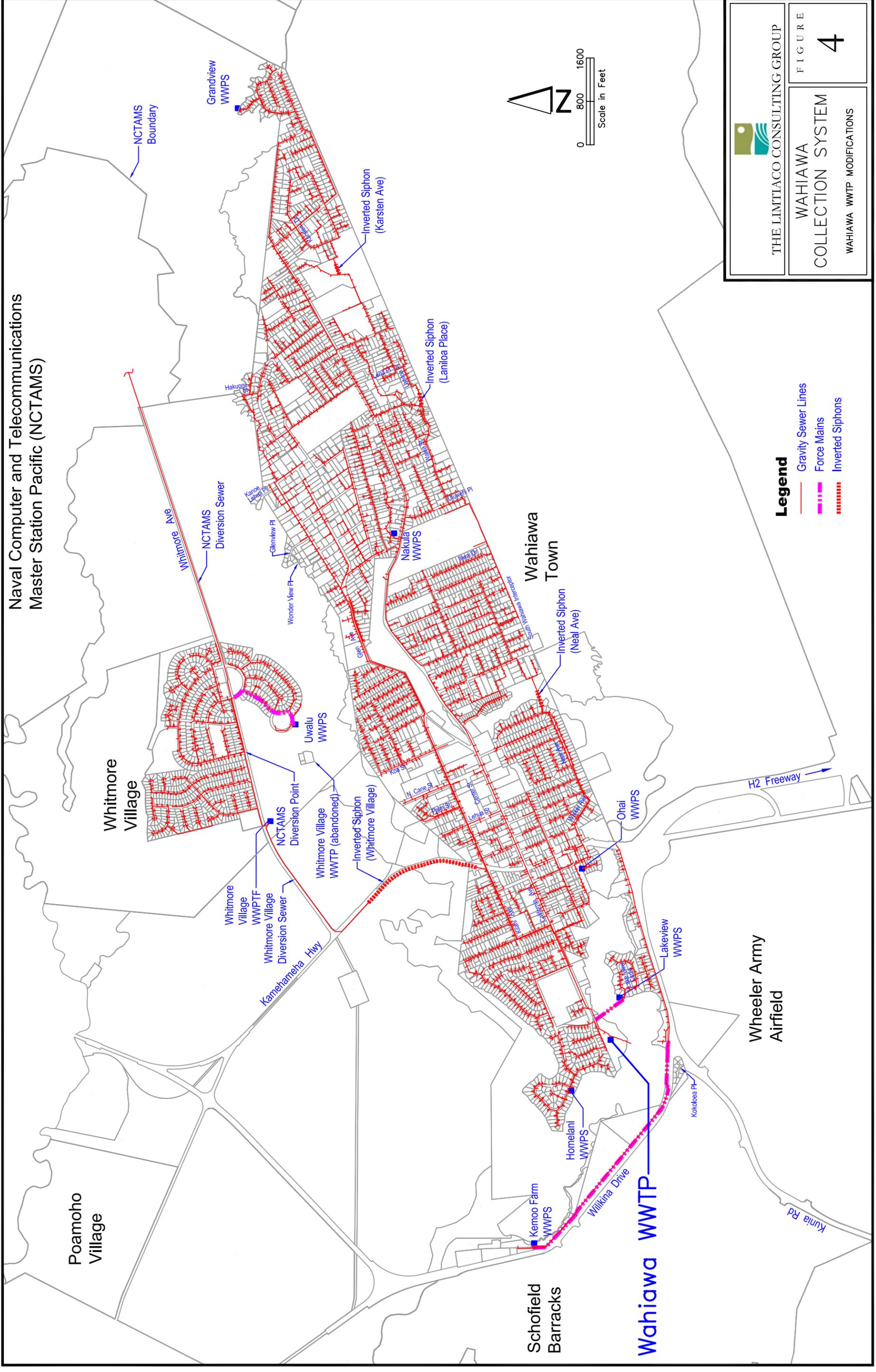
- No redundant primary clarifier.



 <p>THE LIMTIACO CONSULTING GROUP</p>	<p>FIGURE <b>3</b></p>
<p>VICINITY MAP</p> <p>WAHIAWA WWTP MODIFICATIONS</p>	

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Naval Computer and Telecommunications  
Master Station Pacific (NCTAMS)



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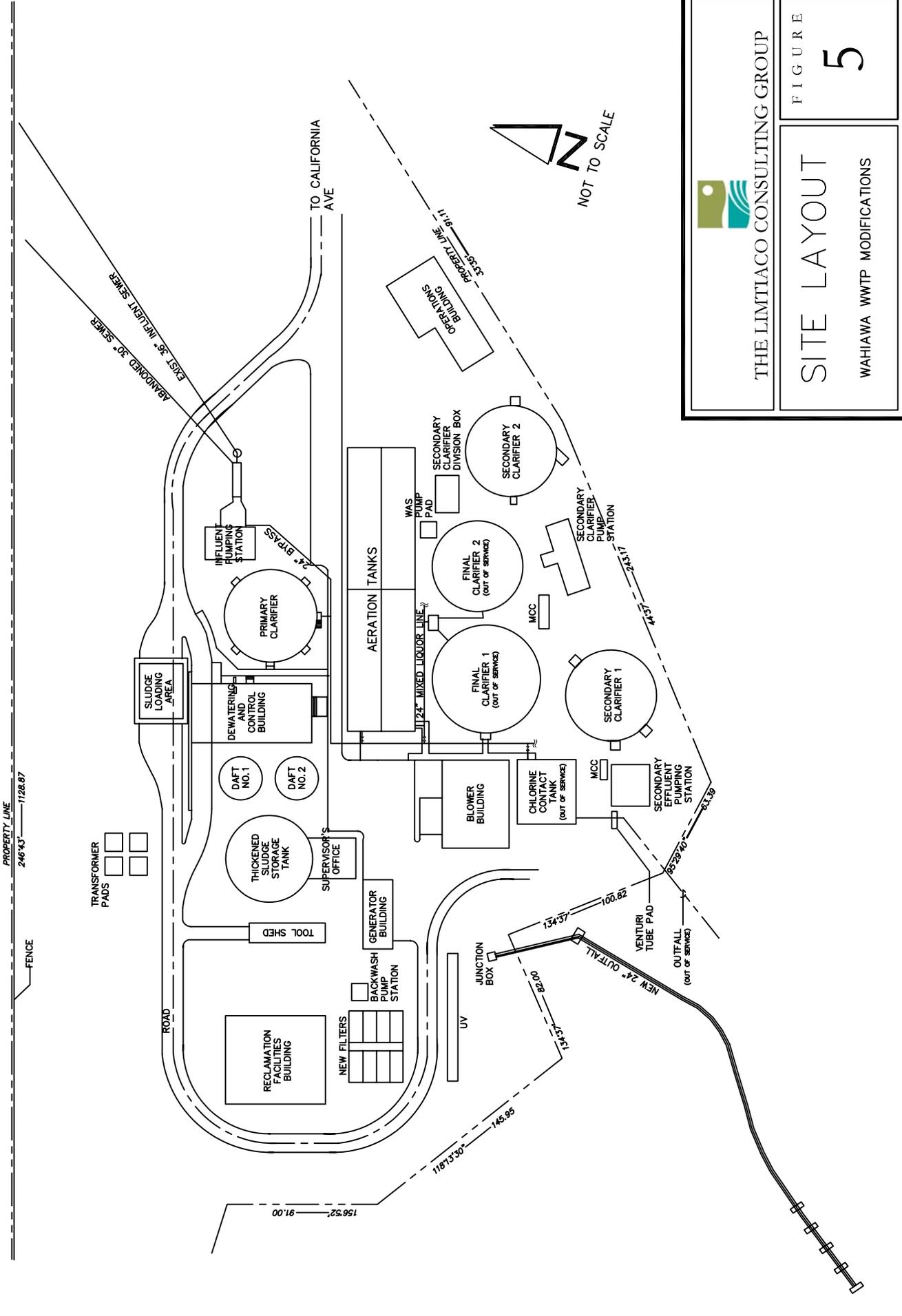
WAHIAWA  
COLLECTION SYSTEM  
WAHIAWA WWTP MODIFICATIONS

FIGURE  
**4**

**Legend**

- Gravity Sewer Lines
- - - Force Mains
- · · · · Inverted Siphons

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FIGURE  
5

SITE LAYOUT

WAHAIWA WWTP MODIFICATIONS

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- Debris from nearby trees has created maintenance problems for the clarifiers and filters.
- No effective coagulation for sand filter.
- Inoperable sludge holding tank due to hydraulic inadequacies.
- Power flickers trigger a cool-down and ramp-up period for the UV disinfection unit creating discharge of reduced-quality effluent.
- No alternate effluent disposal option.

## **2.3. Description of Project**

### **2.3.1. Proposed Action**

As previously mentioned, an Alternatives Analysis Report is being prepared in support of the proposed WWTP improvement project. The recommended action includes the upgrade of the existing IPS and establishment of adequate flow equalization facilities, as well as incorporation of future planned improvements. The recommended action covers both “front-end” (preliminary treatment and storage processes) and “back-end” (all treatment processes following preliminary treatment) improvements. There are front- and back-end improvements because the City needs to fund the proposed project in phases. Moreover, the goal behind developing both front-end and back-end improvements is to maximize the City’s capital investment by reducing the amount of “re-work” that would be needed when the back-end improvements are implemented. The proposed project would achieve the project needs and objectives and includes front-end and back-end improvements as presented below.

#### **Front-end Improvements.**

- a. Two coarse screens, each rated at 6.5 mgd.
- b. Magnetic flow meter.
- c. Three forced vortex grit removal systems, each rated at 6.5 mgd.
- d. Three fine screens, each rated at 6.5 mgd.
- e. Three new influent pumps with variable frequency drive (VFD) drives each rated at 3.25 mgd at 20 feet total dynamic head (TDH).
- f. One dual compartmented wet well, with a total capacity of approximately 36,000 gallons.
- g. Retrofit existing abandoned FCs and chlorine contact tank with submersible pumps, valves, piping and appurtenances to enable them to mix the tank contents and pump back to the IPS (440,000 gallons of the recommended 550,000 gallons of storage).
- h. Biofilter odor control system.

**Back-end Improvements.**

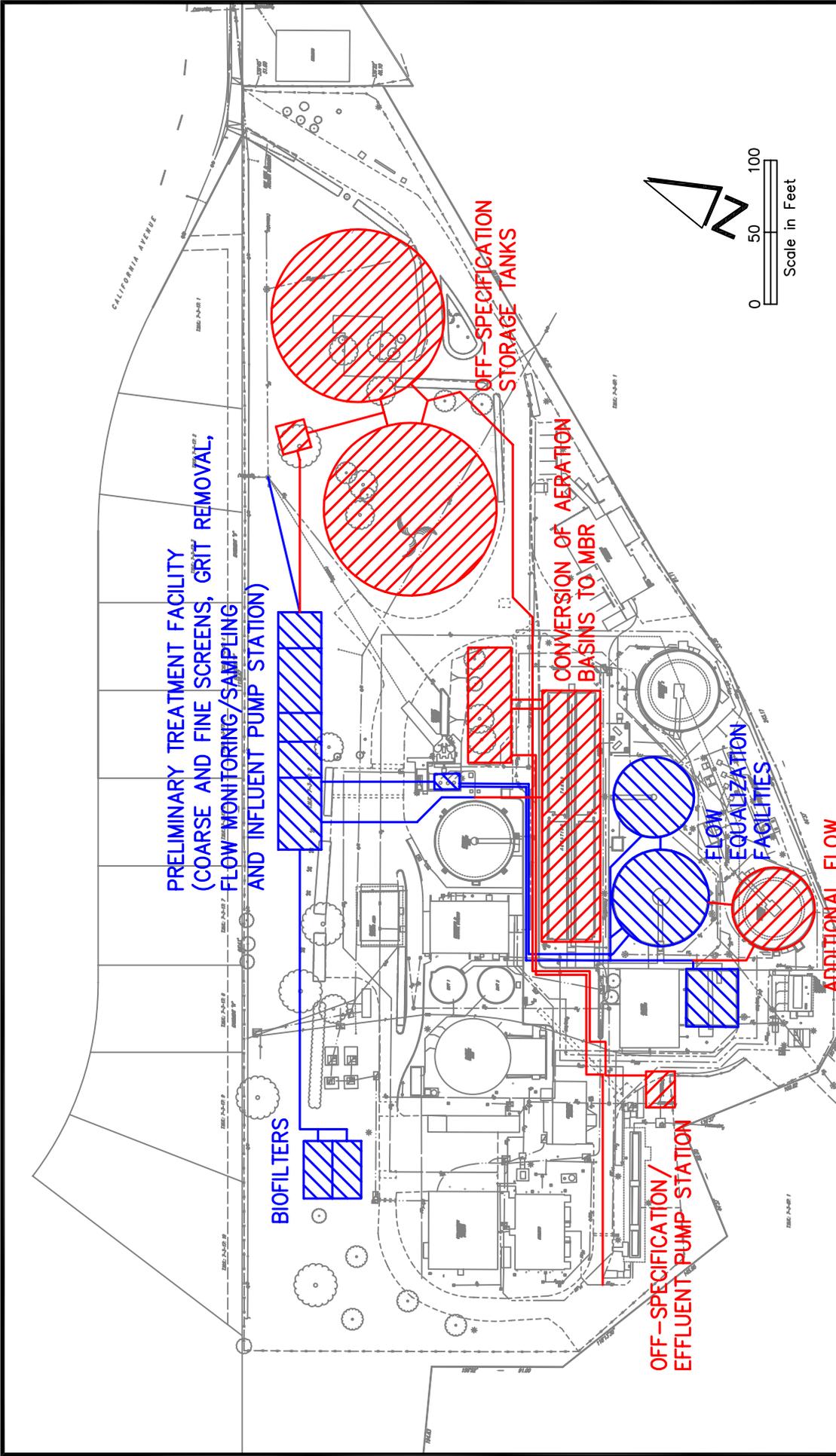
- a. MBR system, including membranes, ancillary pumps (return activated sludge, WAS, and permeate), clean-in-place system, blowers, and aeration basin retrofitting.
- b. Retrofit abandoned secondary clarifier (one of two) with submersible pumps, valves, piping and appurtenances to enable them to mix the tank contents and pump back to the IPS.
- c. Gravity belt thickener (GBT).
- d. Off-specification storage tanks and pump stations.

The proposed WWTP improvement project is based on the deficiencies of the Wahiawa WWTP mentioned in Section 2.2.4 above. The proposed improvements take into consideration water quality requirements and regulatory compliance, cost-effectiveness, ability to provide additional flow equalization volume and operational flexibility, efficient use of space due to project site limitations, and ease of transitioning between existing and new or modified facilities with construction sequencing.

The proposed project utilizes the front-end improvements to replace the entire headworks and IPS in preparation for the implementation of MBR as the major component of the back-end improvements. **Figure 6** illustrates the locations of the facilities impacted by the proposed improvements at the Wahiawa WWTP.

The front-end improvements will include coarse and fine screening and grit removal as the necessary pre-treatment for MBR as well as establishment of flow equalization. A biofilter will be provided to address odors generated by these facilities. New VFD driven submersible pumps in an expanded wet well will provide the plant staff with additional flexibility. These improvements will be constructed on the north side of the property, independent of the existing IPS. This will allow the plant to function normally during construction and should facilitate startup and testing. Flow equalization will be provided by retrofitting the two abandoned FCs and the chlorine contact tank with submersible pumps to pump back to the IPS wet well.

The back-end improvements will include conversion of the existing aeration tanks to MBR facilities, construction of two 3.1 million gallon storage tanks and pump stations in order to route off-specification water to the storage tanks and R-1 quality water to potential BWS recycled water distribution facilities, and implementation of gravity belt thickening of WAS. The proposed project will also result in the abandonment of the primary clarifier, the two active secondary clarifiers (with the conversion of one of the clarifiers to additional flow equalization storage), the tertiary filters, and the dissolved air flotation (DAF) thickener. These improvements should allow the City to




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**PROPOSED PROJECT FACILITIES**  
 WAHIAWA WWTP MODIFICATIONS

**FIGURE 6**

- FRONT-END STRUCTURE
- FRONT-END PIPELINE
- BACK-END STRUCTURE
- BACK-END PIPELINE

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reliably produce R-1 quality recycled water to facilitate BWS in the distribution of water for R-1 applications.

The recommendation regarding the GBT will need to be revisited when additional information regarding the cost of hauling sludge to and the incremental cost of treatment at the Honouliuli WWTP is available. In other words, if it is cheaper to haul the sludge and treat it at the Honouliuli WWTP through the use of the existing DAF thickener, then it may not be reasonable to implement the GBT. However, reducing the volume of side-stream return flow to the IPS wet well is highly desirable.

It is important to note that the long-term effluent disposal strategies associated with the Wahiawa WWTP, including disposal and/or distribution of recycled water, are being presented and evaluated in the aforementioned COWFP and its supporting EIS. Regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, WWTP improvements are needed and intended to occur. Hence, details regarding the disposal and/or distribution of recycled water are not being discussed and evaluated herein as components of the proposed WWTP improvement project. The proposed improvements include treatment upgrades required to produce R-1 quality water and meet Consent Decree requirements.

The majority of the proposed WWTP improvements within the project site will utilize construction methods that involve aboveground work and activities. For example, several of the improvement structures will make use and involve conversion of existing structures at the Wahiawa WWTP. Depending on structure or system process requirements, some excavation or trenching activities may be required for construction of some of the improvement structures. The improvement pipelines will be placed either aboveground or located underground via excavation/trenching, depending on system process requirements and project site constraints.

Common to all implemented construction methods, continued sewer service and treatment will be maintained during construction of proposed project. There will be a high degree of flexibility in construction sequencing for the proposed front-end improvements. The new preliminary treatment facility will be constructed off-line and independent of the existing IPS. Upon completion of the new preliminary treatment facility, the Wahiawa WWTP's existing influent sewer line can be easily switched over and diverted to this new structure. Construction sequencing associated with the back-end improvements is less flexible and will require close coordination with plant staff to facilitate the switch over. For installation and conversion to MBR, temporary facilities may have to be erected in order to continue service and treatment.

The completion of the proposed project will result in the restoration of the WWTP's hydraulic capacity, improvement of the WWTP's reliability in treating wastewater, the production of R-1 quality recycled water, and compliance with regulatory requirements. The proposed project will restore the hydraulic capacity of the Wahiawa WWTP by successfully re-establishing the design capacity of the IPS and providing a large volume of flow equalization capacity due to space efficiency. Additionally, an alternate sludge thickening system (i.e., GBT) would significantly reduce the amount of side-stream return flow recirculated in the plant. The increased pumping and storage capacity as a result of the new IPS and equalization of peak raw wastewater flow will also significantly reduce the potential for SSOs at the Wahiawa WWTP and throughout the Wahiawa wastewater collection system. Treatment reliability will also be improved at the Wahiawa WWTP by means of the new preliminary treatment facility, which will enhance performance of the overall treatment processes at the plant. The proposed project would allow the City to reliably produce R-1 quality recycled water to facilitate the BWS' distribution of water for R-1 applications, the most liberal use of recycled water recognized by DOH.

### **2.3.2. Additional Considerations**

The proposed project is located entirely at the site of the Wahiawa WWTP—a parcel owned by the City. Therefore, the portions of the project site that would be affected by the proposed WWTP improvement project are under the jurisdiction of the City. Although all construction activities will occur within the property boundaries of the Wahiawa WWTP site, off-site construction staging may be required due to the limited availability of space on the project site.

Access to the project site will be via the WWTP's private entrance driveway. As such, entry and construction activity on private property is not expected.

The proposed project would not require the acquisition of new permanent easements as all of the proposed project improvements can be accomplished within existing property boundaries and easements held by the City. Further, temporary construction easements would not be required for the proposed project. If for some reason temporary construction easements are necessary, they will be obtained prior to construction activities.

The proposed project includes the following design and construction considerations to minimize disruptions to existing residences, institutions, and traffic adjacent to the project site and within the Wahiawa wastewater service area:

- All construction activities will occur within the property boundaries of the Wahiawa WWTP site; however, off-site construction staging may be required due to project site constraints (i.e., limited space on site).
- Sewer service and treatment will be maintained during construction of the proposed project.
- In order to minimize disruptions to existing residences, the majority of construction work will be performed during daytime hours (as opposed to night work). Although wastewater flows may dictate that some construction work occur during nighttime hours, the performing of construction activities at night will be limited to the extent feasible and carried out only as necessary.
- Access to the site will be via the WWTP's existing private entrance driveway.
- Any open trenches will be covered with steel plates during hours when construction operations are not occurring.
- Adequate trench support and use of groundwater inflow control methods, if groundwater levels are encountered, will be employed during any excavation to mitigate soil consolidation and compression of soft deposits and to minimize dewatering efforts.
- Potential visual impacts associated with the off-specification storage tanks will be mitigated by painting the tanks. An appropriate paint color will be selected in order to reduce visual impacts.
- The entire new preliminary treatment facility will be enclosed in order to mitigate potential noise and odor impacts.
- Minimum necessary setback and height constraints will be maintained for all newly constructed facilities per DOH requirements and/or City ordinances.
- All necessary permits and approvals will be acquired prior to the construction of the proposed WWTP improvements.

Several utilities exist throughout the project site and it is possible that utility relocations may be required. The need for utility relocations will be investigated further and verified during the design phase. If necessary, relocation of utilities would likely impact the actual construction cost.

### **2.3.3. Project Schedule and Construction Cost**

The City intends to design and construct the front-end and back-end improvements in phases. It is anticipated that construction of the front-end improvements will begin in 2009. Following construction of all front-end improvements and depending on available funding, construction of the back-end improvements could begin as early as 2010.

The estimated costs for the front-end and back-end improvements are \$7,785,000 and \$28,600,000, respectively, and the project would use City funds.

### **3. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS, AND MITIGATION MEASURES**

#### **3.1. Climate**

The climate at the project site is typical of the climate that characterizes most of the State: relatively mild and constant temperatures throughout the year, moderate humidity, persistent northeasterly trade winds, and infrequent severe rainstorms. The northeasterly trade wind is the prevailing wind throughout the year for the island of Oahu, although its average frequency varies from more than 90% during the summer to only about 50% in January. The mean annual wind velocity recorded in the vicinity of the project site varies between approximately 9 and 10 miles per hour (WRRC, n.d.(a)).

Daily maximum temperatures in the vicinity range from the high 70s in the winter to the low 80s in the summer. Daily minimum temperatures vary from the low 60s in the winter to the mid 60s in the summer. (WRRC, n.d.(b))

Hawaii's heaviest rains come from winter storms that generally occur between October and April. The terrain greatly affects trade wind showers, with some effects on storm rainfall. In general, large differences in rainfall occur over small distances because of topography and the location of the rain clouds. (WRRC, n.d.(c)) Rainfall in the vicinity of the project site is relatively moderate, with a median annual rainfall of approximately 39 to 59 inches.

#### **Impacts and Mitigation Measures**

No impacts on climatic conditions are anticipated as a result of the construction and operation of the proposed WWTP improvement project. Therefore, no mitigation measures associated with climatic conditions are necessary.

#### **3.2. Geology and Soils**

According to the *Geology of the State of Hawaii* (1985), the project site is situated within the large plateau that spans the central part of Oahu, geologically referred to as the Schofield Plateau. The Schofield Plateau was formed by the lava flows from the Koolau Range to the east banking against the older Waianae Range to the west. These lava flows are part of the Koolau volcanic series. The Koolau volcanic series comprises the majority of the Schofield Plateau, and some of the series partially overlaps the Waianae volcanic series within the plateau. Both the Koolau volcanic series and Waianae volcanic series emerged during the Tertiary period of the Cenozoic era, with the lavas erupting in the Pliocene time; however, the Koolau volcanic series is the younger of the two series. On the west side of the plateau and along the rim of the Kaukonahua Valley, the plateau consists of alluvium from the

Waianae Range piled against and interweaved with the Koolau lavas. These alluvial deposits occurred during the Holocene and Pleistocene ages.

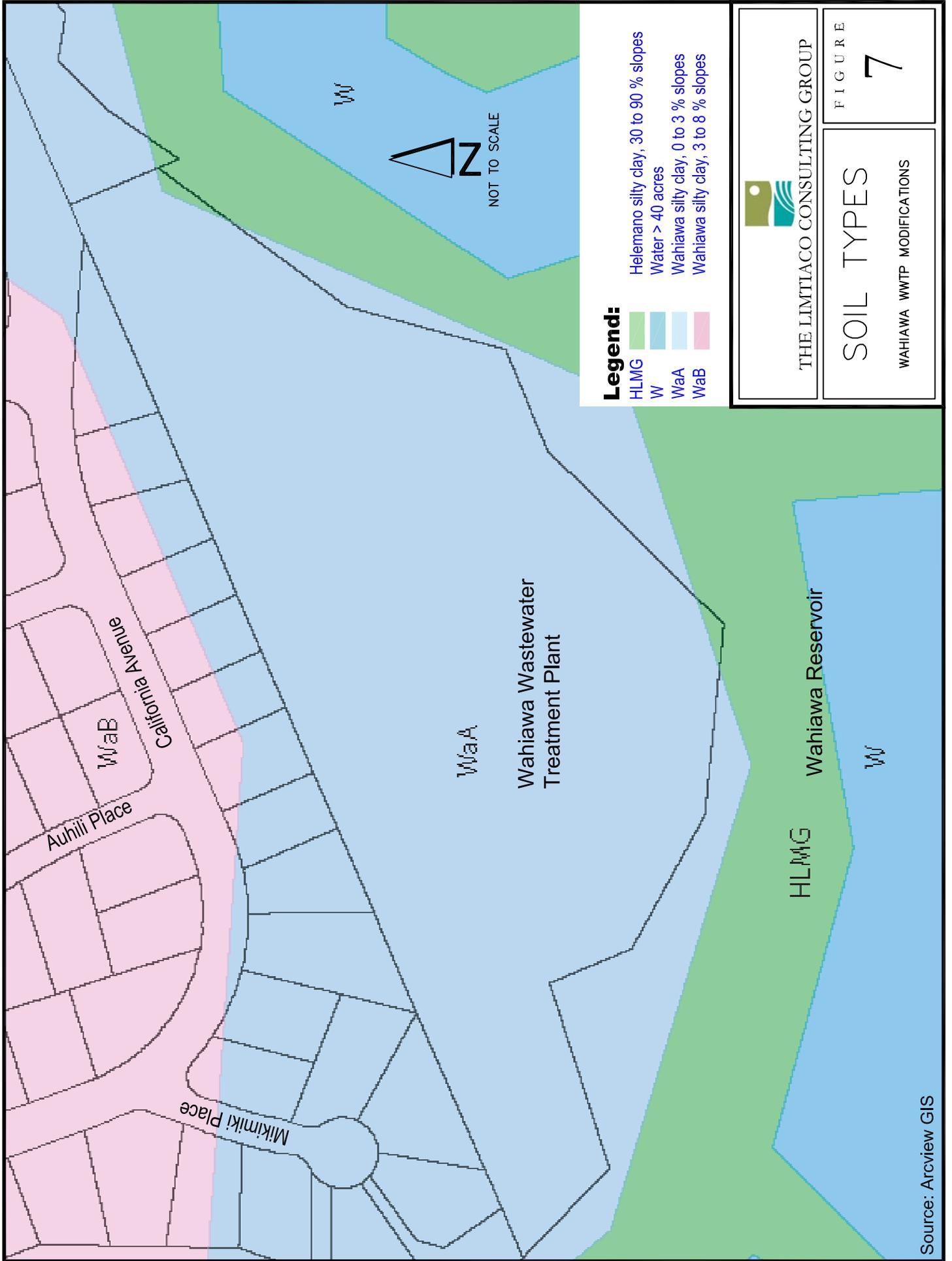
Overall, the project site is situated within the Koolau volcanic series. Alluvial deposits of the Waianae volcanic series characterize the area lying to the west of the project site.

According to the *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii* (August 1972) publication's General Soils Map of Oahu, the project site is of the Helemano-Wahiawa association, which consists of well-drained, moderately fine textured and fine textured soils on uplands that occur within elevation ranges from 100 to 1,200 feet. These soils are nearly level to moderately sloping, occur in broad areas dissected by very steep gulches, and are formed in material weathered from basalt. Helemano soils make up about 40% of the association; Wahiawa soils comprise 30%; and Kunia, Lahaina, and Molokai soils make up the remaining 30%.

Helemano soils occur on the sides of very steep gulches, have slopes of 30 to 90%, and are dark reddish-brown silty clays. Wahiawa soils occur on uplands ranging from 500 to 1,200 feet and have slopes of 0 to 25%. These soils have a surface layer of very dusky red silty clay, a subsoil of dark reddish-brown silty clay, and a substratum of soft weathered rock.

Nearly the entire project site consists of a Wahiawa series soil type: Wahiawa silty clay, 0 to 3% slopes (WaA) (**Figure 7**). This soil type occurs on smooth, broad interfluvies. The profile of this soil type includes a surface layer that is very dusky red and dusky red silty clay about 12 inches thick, a subsoil that is dark reddish-brown silty clay with a subangular blocky structure about 48 inches thick, and an underlying material that is weathered basic igneous rock. For the WaA soil type, runoff is slow, the erosion hazard is no more than slight, and permeability is moderately rapid. The available water capacity is about 1.3 inches per foot in the surface layer and about 1.4 inches per foot in the subsoil.

Additionally, geotechnical surveys were conducted within the project site in August/September 1998 and May 1999 in support of previously completed WWTP improvements. Soil borings and subsurface soil conditions were collected and recorded during the geotechnical investigations. Depending on the location of these previously conducted surveys in relation to the proposed WWTP improvements, the geotechnical information obtained could be utilized to properly design the proposed WWTP improvements and construction methods. Furthermore, an additional geotechnical survey will be conducted within the project site if deemed necessary during the design phase. The survey will consist of geotechnical investigations performed at those specific locations targeted for improvements which were not



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FIGURE  
7

SOIL TYPES

WAHIAWA WWTP MODIFICATIONS

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included in the previously conducted surveys and/or require verification and thorough assessment of soil conditions. Soil drilling, sampling, and analysis would be conducted during these geotechnical investigations, and the geotechnical information obtained would be required to properly design the proposed WWTP improvements and construction methods.

### **Impacts and Mitigation Measures**

No significant adverse impacts to geology or soils within the project site are anticipated.

The vast majority of the proposed WWTP improvements within the project site will utilize construction methods that do not require excavation or trenching activities. For example, several of the improvement structures will make use and involve conversion of existing structures at the Wahiawa WWTP. Therefore, no significant impacts to the subsurface are anticipated.

Conditional on the requirements of structures or system processes and project site constraints, excavation activities and open cut trench construction methods may be used for construction and installation of some improvement structures and pipelines within the project site. Adequate trench support and use of groundwater inflow control methods, if groundwater levels are encountered (refer to Section 3.4, Groundwater), will be employed during excavation to mitigate soil consolidation and compression of soft deposits and to minimize dewatering efforts. Erosion of soils due to site preparation and the construction of improvements is anticipated to be minimal. Some wind erosion of soils could occur without a proper watering, and heavy rainfall could also cause erosion of soils within disturbed areas of the project site. All construction activities will comply with applicable federal, State, and County regulations and rules for erosion control. Appropriate erosion control measures and Best Management Practices (BMPs), such as the installation of silt fences at the base of all slopes, will be utilized. It is not anticipated that the construction activities will have an adverse effect on adjacent properties and resources. Appropriate foundation improvements will be implemented in order to adequately support the proposed improvements (e.g., due to the sheer size of the proposed structures and the large quantity of water they will contain) and operate the facility. Also, some of the excavated soils may be reused as backfill material; soils unsuitable for reuse will be removed from the site. Any excess excavated material not reused during construction activities will be removed to ensure proper site drainage. Excavation and backfill activities are not expected to have any significant impact on the subsurface of the project site.

As previously stated, geotechnical surveys were previously conducted within the project site in August/September 1998 and May 1999. Depending on the location of these surveys, the geotechnical information obtained could be utilized to properly design the proposed WWTP improvements and construction methods. If deemed necessary, an additional geotechnical survey will be conducted within the project site during and in support of the design phase. Additional geotechnical investigations will be performed at those specific locations targeted for improvements which were not included in the previously conducted surveys and/or require verification and thorough assessment of soil conditions. The geotechnical information obtained would be utilized to ensure the proper design of the proposed WWTP improvements and construction methods.

### **3.3. Topography**

The project site is relatively flat and generally slopes from north to south in the direction of the Wahiawa Reservoir. The topography throughout the project site ranges in elevation from approximately 870 feet above mean sea level (MSL) to approximately 850 feet above MSL.

Additionally, topographic surveys have been conducted at the project site in support of the design phase. This effort was completed in May 2007. The topographic surveys were performed throughout entire project site.

#### **Impacts and Mitigation Measures**

The majority of the proposed WWTP improvements within the project site will involve the placement and installation of structures and pipelines aboveground. Additionally, several of the improvement structures will make use and involve conversion of existing structures at the Wahiawa WWTP. These construction methods do not require trenching and minimize subsurface impacts.

The proposed WWTP improvements may involve the use of excavation activities and the conventional construction method of open cut trenching within the project site for installation of some of the improvement structures and pipelines. The use of such construction methods will depend on structure or system process requirements and project site constraints. The areas affected by excavation activities and open cut trenching, except for those locations where a new improvement structure is placed aboveground, will be finished and restored to match the existing grade. Overall, the final grade of the project site will be approximately similar to existing grades. The final grading design for the site will be based on soil data and recommendations

for grading and maximum slopes. Proper grading will alleviate potential negative environmental consequences, such as soil instability.

No significant adverse impacts to the topography of the project area are anticipated as a result of the completion of the project.

### **3.4. Groundwater**

According to the State of Hawaii, Department of Land and Natural Resources (DLNR) aquifer classification system, the aquifer underlying the project area is the Wahiawa Aquifer System Area of the Central Aquifer Sector Area (CWRM, 2000).

#### **Impacts and Mitigation Measures**

The proposed project is not anticipated to have any impact on groundwater resources.

The vast majority of the proposed improvements will utilize construction methods that do not require excavation or trenching activities. Therefore, no significant impacts to the subsurface are anticipated.

Excavation activities or open cut trench construction methods may be required for construction of some of the improvement structures and pipelines depending on structure or system process requirements and project site constraints. Per the aforementioned geotechnical investigations conducted in August/September 1998 and May 1999, the water table at the project site likely occurs below the bottom elevation of any proposed excavation and open cut trenching activities. Therefore, dewatering activities are not anticipated to be necessary during the construction and installation of proposed improvements.

Furthermore, as previously mentioned, an additional geotechnical survey will be conducted within the project site during and in support of the design phase if deemed necessary. These additional geotechnical investigations will be performed at those specific locations targeted for improvements which were not included in the previously conducted surveys and/or require verification and thorough assessment of soil conditions. They will assist in determining whether groundwater is likely to be encountered within the project site.

If groundwater levels are encountered, dewatering activities will be minimized through the use of appropriate groundwater inflow control methods. Should dewatering activities be necessary for the proposed project, a National Pollutant Discharge Elimination System (NPDES) General or Individual Permit for discharges of construction dewatering effluent into State waters will

be required. A Notice of Intent to be covered by NPDES General Permit must be submitted to the DOH, Clean Water Branch at least 30 days before the commencement of construction activities, while an application for a NPDES Individual Permit must be submitted at least 180 days before the commencement of construction activities.

There are no adverse long-term groundwater related impacts associated with the completion and operation of the proposed WWTP improvement project. In fact, the proposed improvements to the WWTP (i.e., the increased pumping and storage capacity on account of the new IPS and equalization of peak raw wastewater flow) will potentially have beneficial impacts on groundwater resources as a result of the reduced potential for SSOs at the Wahiawa WWTP and throughout the Wahiawa wastewater collection system. Furthermore, regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, production of R-1 quality water and enhancement of the effluent quality will potentially have beneficial impacts on any downstream, receiving groundwater resources.

### **3.5. Surface Waters**

The project site is immediately adjacent to the Wahiawa Reservoir, with the Wahiawa WWTP site bounded by the reservoir to the west and south. The Wahiawa Reservoir receives water from the north and south forks of Kaukonahua Stream. Overflows from the reservoir dam enter Kaukonahua Stream, which flows northward and joins Poamoho Stream to form Kiikii Stream. Kiikii Stream eventually drains and outlets to the ocean at Kaiaka Bay on Oahu's north shore.

Wahiawa Reservoir was established for the primary purpose of irrigating sugar cane fields. The reservoir was formed by the construction of an earthen rock-filled dam in 1906 below the confluence of the north and south forks of Kaukonahua Stream, which commence in the Koolau Mountain Range. At approximately 88 feet high and 660 feet long (DBEDT, 2007), the dam causes water flowing downstream along the stream's north and south forks to inundate and create the approximately 300-acre Wahiawa Reservoir. The reservoir's normal volume of water is approximately 7,761 acre-feet (DBEDT, 2007).

The Kaukonahua stream is one of the State's longest streams and one of its most altered. Wahiawa Reservoir's dam isolates the stream's upper reaches, and because the dam retains water in the Wahiawa Reservoir, the lower sections of Kaukonahua Stream are often dry. (AECOS, Inc., 2007) However, overflows have become more commonplace with the reduced agricultural demands from the reservoir following the demise of the sugar cane industry.

Kaukonahua Stream, including its north and south fork tributaries, are considered to be part of the Kiikii Stream System with the other major branch of the Kiikii system being Poamoho Stream and its tributaries. The U.S. Geological Survey (USGS) has three gaging stations along the Kaukonahua Stream and its two tributaries. According to measurements at the USGS' stations, the Kaukonahua Stream's entire watershed is 38.7 square miles. Land-use in the watershed is mixed and designated as approximately 44% forested/conservation in the upper area and approximately 55% agricultural (45%) and urban (10%) in the lower area. The drainage areas measured at the stream's south fork and north fork gaging stations are 4.04 square miles and 4.90 square miles, respectively. Land use along the south fork drainage area is designated as approximately 99% forested/conservation and 1% agricultural. Land use along the north fork drainage area is designated as 100% forested/conservation. (AECOS Inc., 2007)

As previously mentioned, since its construction in 1927, the Wahiawa WWTP has discharged its treated effluent into the Wahiawa Reservoir. In 1968, the Whitmore Village WWTP began discharging secondary treated effluent into the reservoir. However, in March 1994, the Whitmore Village WWTP was closed and flows were diverted to the Wahiawa system for treatment at the Wahiawa WWTP. As part of the Wahiawa WWTP's tertiary treatment upgrade completed in December 2002, a new deep-water outfall into Wahiawa Reservoir was constructed. Therefore, all flows from the Wahiawa wastewater system are currently treated at Wahiawa WWTP and discharged to the reservoir via the deep-water outfall.

Per the U.S. Fish and Wildlife Service's National Wetlands Inventory, there are no wetlands located within or immediately adjacent to the project site. The Wahiawa Reservoir is identified as a lake, with some wetland resources shown to exist along the reservoir's alignment at locations upstream and downstream of the project site. These wetland resources are identified as freshwater emergent wetlands and freshwater forested/shrub wetlands. (USFWS, 2007)

### **Impacts and Mitigation Measures**

No significant adverse impacts to surface water resources within or downstream of the project site are anticipated to result from implementation of the proposed project. Refer to Section 3.9, Surface Water Quality for details regarding potential impacts to surface water quality within or downstream of the project site.

The proposed project may involve the use of excavation activities and open cut trench construction methods for some of the proposed WWTP improvements; however, the majority of the improvements will involve the placement and installation of structures and pipelines aboveground (including making use of and the conversion of several existing structures at the

Wahiawa WWTP). These construction methods do not require excavation or trenching activities and minimize subsurface impacts.

All project improvements and construction activities will occur within and be confined to the existing Wahiawa WWTP project site. The proposed project will not involve activities or discharges within the bed or banks of Wahiawa Reservoir or Kaukonahua Stream. So, no temporary structures will be placed within or along the banks of any waterbody as a result of the proposed project.

There are no long-term surface water impacts associated with the completion and operation of the proposed WWTP improvements. No permanent structures will be placed within or along the banks of any waterbody as a result of the proposed project. No alteration of the bed or banks of Wahiawa Reservoir or Kaukonahua Stream are proposed, and the project will not result in any changes to the course or capacity of the existing stream system.

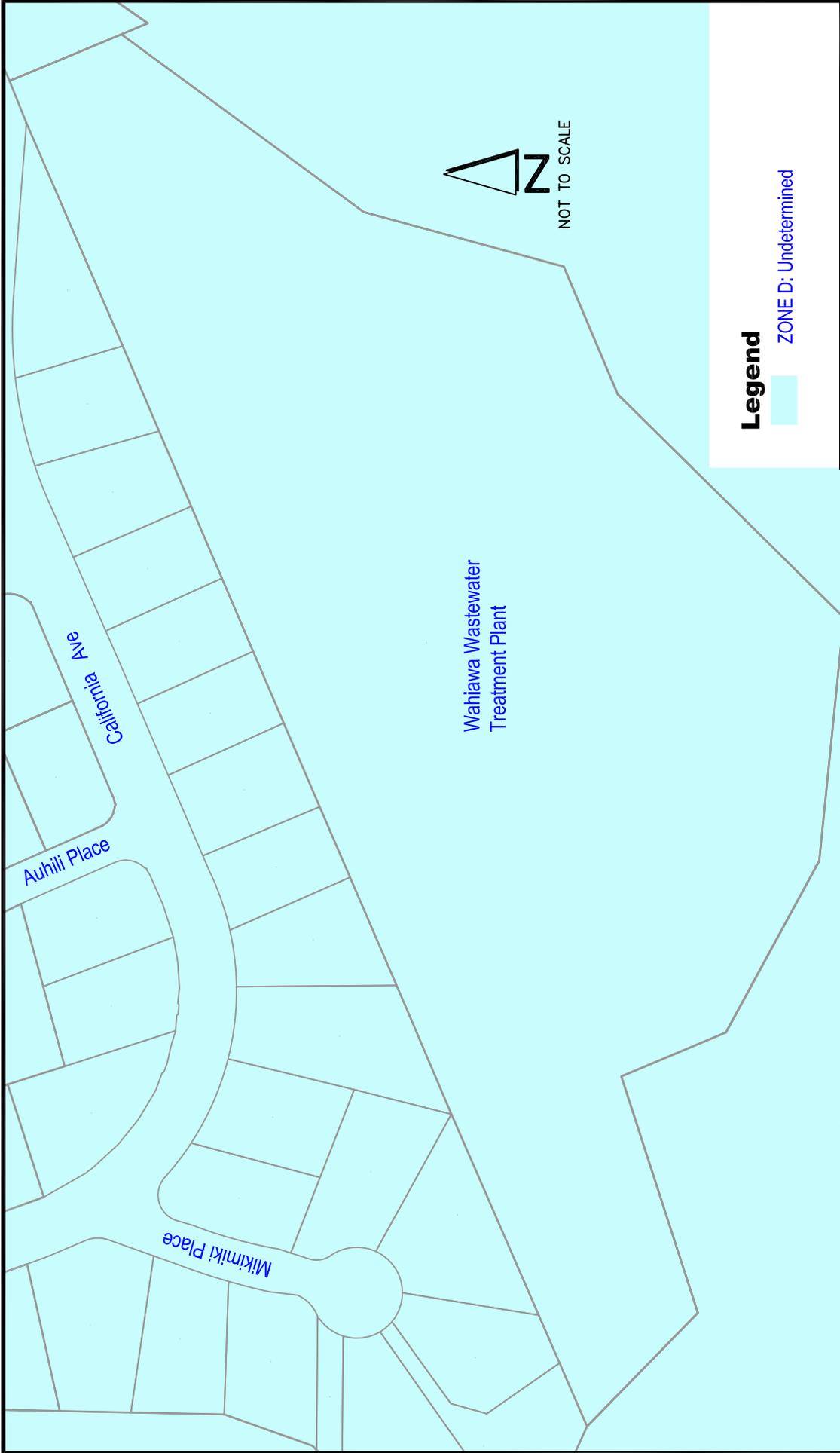
### **3.6. Flood, Tsunami, and Earthquake Hazards**

According to the Federal Emergency Management Agency Flood Insurance Rate Map, Community Panel Number 15003C 0225 E for the City and County of Honolulu (effective November 20, 2000), the project site is identified as within Zone D. Zone D designates areas in which the flood hazard is undetermined, and the Flood Insurance Program does not have any regulations for developments within Zone D (**Figure 8**). Runoff from the Wahiawa WWTP and surrounding areas generally flow into the reservoir, and there have been no reports of significant on-site flooding at the Wahiawa WWTP from surface runoff.

In addition, the Wahiawa Reservoir itself poses a flood hazard as the waters in the reservoir reach above the emergency spillway. There have been instances when storms occurring in the Koolau mountains have caused flows to surge over the reservoir's emergency spillway into the Kaukonahua Stream, causing flood waters to rise downstream in Waialua. Overall, this reservoir was constructed for irrigation purposes and was not designed for flood control storage.

The project site is located in Central Oahu and several miles from the island's coastline. According to the tsunami evacuation zone maps produced by the Joint Institute for Marine and Atmospheric Research and the State Civil Defense System, the project site is not within a tsunami evacuation zone.

Engineers, seismologists, architects, and planners have carefully evaluated seismic hazards related to building construction and have devised a system of classifying seismic hazards on the basis of the expected strength of ground shaking and the probability of the shaking actually occurring within a specified time. The results are



**Legend**

 ZONE D: Undetermined



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**FLOOD\_ZONE  
DESIGNATION MAP**

WAHIAWA WWTP MODIFICATIONS

FIGURE

8

Source: Flood Insurance Rate Map, City and County of Honolulu, Community-Panel Number 15003C 0225 E

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included in the Uniform Building Code (UBC) seismic provisions. The UBC seismic provisions contain six seismic zones, ranging from 0 (no chance of severe ground shaking) to 4 (10% chance of severe shaking in a 50-year interval). In 1997, the State's seismic zone assignments were upgraded for the islands of Oahu and Hawaii. Currently, Oahu lies within the UBC seismic risk zone 2A (City, n.d.).

### **Impacts and Mitigation Measures**

It is unlikely that the construction and operation of the proposed WWTP improvements will result in the flooding of the project site, the surrounding area, or downstream areas. All activities will occur within and be confined to the Wahiawa WWTP site. After completion of construction activities, where the proposed improvements would require excavation activities or open cut trenching and except for those locations where a new improvement structure is placed aboveground, the ground surface will be finished and restored to align with existing surface elevations.

Overall, the final grade of the project site will be approximately similar to existing grades. The final grading design for the site will be based on soil data and recommendations for grading and maximum slopes. Proper grading will alleviate potential negative environmental consequences such as flooding. Runoff from the Wahiawa WWTP and surrounding areas will continue to flow into the reservoir. No temporary or permanent structures will be placed within or along the banks of any waterbody as a result of the proposed project. No alteration of the bed or banks of the Wahiawa Reservoir or Kaukonahua Stream is proposed, and the project will not result in any changes to the course or capacity of the existing stream system.

The proposed project is located a significant distance from the island's coastal areas and would not result in an increased risk of tsunamis.

Implementation of the proposed project would not result in an increase to the risk of earthquakes. Nonetheless, construction contractors will be required to employ sound engineering practices and adhere to the appropriate UBC requirements, which include structural design standards for earthquake resistance, for necessary structures.

### **3.7. Floral and Faunal Resources**

The project site consists of and solely contains the Wahiawa WWTP. Hence, the proposed project is located on a highly altered site. Overall, the project site is located adjacent to and within a highly altered urban environment.

Lands altered and influenced by a high degree of urban development and human activity, such as the project site, are often characterized by floral communities dominated by introduced species. Consequently, most of the vegetation within and adjacent to the project site consists of landscaping, and flora species found within and adjacent to the project site are primarily non-native species. The Wahiawa WWTP site has been landscaped with various ornamental and fruit trees. No Federal or State listed or candidate threatened or endangered floral species are known to occur within the project site.

According to a biological survey report prepared for the proposed Wahiawa Effluent Reuse project for Central Oahu (Funk, 1997), the vegetation type adjacent to the project site's western and southern boundary (i.e., between the project site's boundary fencing and Wahiawa Reservoir) is denoted as Reforested Lakeside Vegetation. Emergent trees within this area include lemon-scented gum, ironwood, Formosan koa, African tulip, and octopus tree. The understory vegetation of this area includes garden escapees, such as banana tree and ti; weeds, such as white shrimp plant, Guinea grass, and wire grass; and obligate wetland vegetation, which is mainly the floating aquatic water hyacinth. None of the floral species found within this area are Federally- or State-listed or candidate threatened or endangered species.

Lands altered and influenced by a high degree of urban development and human activity, such as the project site, are often characterized by faunal communities dominated by introduced species. Consequently, faunal species found within and adjacent to the project site are primarily non-native species. The Wahiawa WWTP site is mostly developed with structures and lacks the necessary habitats to support or attract native faunal communities. Most native faunal species that may have inhabited the project site have been displaced, and fauna and avifauna species presently found are predominantly introduced species and those that are common to and have adapted to the urban environment. Mongoose, rats, mice, and cats are common to the project site. Avifauna species presumed to frequent the site are those common to urban environments and may include the common mynah, house finch, house sparrow, Northern cardinal, red-vented bulbul, barred dove, spotted dove, and pigeon. No Federal or State listed or candidate threatened or endangered faunal species are known to occur within the project site.

Surveys were conducted in association with the biological survey report prepared for the proposed Wahiawa Effluent Reuse project for Central Oahu (Funk, 1997). According to the survey report, introduced species, such as Northern cardinals and House sparrows, were observed in trees near the Wahiawa Reservoir. Black-crowned night herons, which are native to Hawaii and not endangered, were also observed in this area, and it is presumed that the House mouse and Black rat also

frequent the area around the reservoir. None of the faunal species found during the survey are Federally- or State-listed or candidate threatened or endangered species.

### **Impacts and Mitigation Measures**

No significant adverse impacts to flora and fauna within or in the vicinity of the project site are anticipated to result from implementation of the proposed project. All project improvements and construction activities will occur within and be confined to the existing Wahiawa WWTP project site. The project site and surrounding area are highly altered, influenced by a high degree of urban development, and often characterized by floral and faunal communities dominated by introduced species. Sensitive species or habitats are not known to occur within the project site and generally do not occur within urban, developed areas. No Federal or State listed or candidate threatened or endangered species are known to inhabit or occur within the project site.

Potential impacts on introduced, non-native floral and faunal species may result from construction activities and proposed improvements within the project site. During construction, vegetation within the project site and adjacent to the temporary off-site construction staging area (if necessary) may be negatively affected. Any existing vegetation or landscaping disturbed within these areas during construction activities will be restored and revegetated, to the extent practicable. However, as previously stated, all construction activities would occur on the already-developed and currently existing Wahiawa WWTP site, and no impacts to sensitive floral or faunal communities are expected.

### **3.8. Air Quality**

Per the requirement of the Clean Air Act (last amended in 1990), the U.S. Environmental Protection Agency has established the National Ambient Air Quality Standards (NAAQS) in order to protect public health and welfare and prevent the significant deterioration of air quality. Additionally, the DOH has established State Ambient Air Quality Standards (SAAQS) to regulate air quality statewide. The State standards for carbon monoxide and nitrogen dioxide are more stringent than their federal counterparts. Hawaii also have a stringent standard for hydrogen sulfide, which is a common odorous pollutant associated with wastewater treatment facilities.

The DOH, Clean Air Branch monitors air quality at selected locations throughout the State. Currently, there are nine State-maintained air quality monitoring stations on Oahu that measure various types of pollutants. The Pearl City monitoring station, which is located approximately eight miles southeast of Wahiawa, is located nearest to the project site. The Pearl City monitoring station was established in 1979 and

currently monitors for the volume of PM<sub>2.5</sub> and PM<sub>10</sub> particulate matter. The Sand Island monitoring station, which is located at the University of Hawaii's Anuenue Fisheries in the Sand Island Industrial Park, was established in 1980 and is the only ozone monitoring station in the State. None of the ten air quality monitoring stations on Oahu measure hydrogen sulfide; however, the Big Island hosts three stations which monitor for this pollutant. (DOH, Clean Air Branch)

In general, air quality in the State of Hawaii continues to be one of the best in the nation, and criteria pollutant levels remain well below NAAQS and SAAQS. According to the *Annual Summary 2006 Hawaii Air Quality Data* and the *2005 Annual Summary Hawaii Air Quality Data*, air quality monitoring data compiled by the DOH indicates that the established air quality standards for all monitored parameters are consistently met throughout the State and on the island of Oahu. Data from all the State-maintained air quality monitoring stations indicate that air quality for the monitored parameters is within the NAAQS and SAAQS.

Overall, air quality in the vicinity of the project site is considered to be good and meets NAAQS and SAAQS. Air quality at the project site and vicinity is positively influenced by northeast tradewinds that predominate throughout the year and blow pollutants from inland areas out to sea. Problems with poor air quality and elevated pollutant levels generally occur when tradewinds diminish or give way to southerly and southwesterly winds (known as Kona wind conditions). It is under stable conditions that the greatest potential for air pollutant buildup from groundlevel sources exists. Localized problems of poor air quality may occur under adverse Kona wind conditions at and in the vicinity of the Wahiawa WWTP site.

Although WWTPs can be sources of regulated air pollutants, such facilities are not considered major sources of such pollutants. The Wahiawa WWTP is not a "major source" of hazardous air pollutants, as defined by the Clean Air Act, and therefore is not subject to federal standards. The more common association of WWTPs with air quality is related to odors. Odors frequently arise from WWTPs due to the nature of the material being processed and the process itself. The odorous compounds most commonly known in association with WWTPs are hydrogen sulfide and ammonia. In general, odorous gases and vapors disperse downwind from a source and become diluted. Using the EPA's model SCREEN3, computations indicate a sharp decline in odor concentration and intensity with distance (i.e., a reduction of 94% or more within 100 meters). (Morrow, 2007)

As stated in the air quality impact report prepared for the proposed COWFP project (Morrow, 2007), the following odor and odor control conditions currently exist at the Wahiawa WWTP:

- There have been odor complaints in the past due to the close proximity of residential units to the WWTP. Despite the close proximity of some residence to

the WWTP's north boundary, one would expect fewer odor complaints as a result of the prevailing tradewinds. These winds would blow odorous emissions away from those residences. Under such conditions, the nearest residences downwind of the plant would be far enough away and experience little or no odor effects based on the significant dilution effects demonstrated using the EPA's model SCREEN3. However, while most residential and institutional uses north and northeast of the WWTP are more than 100 meters away, there are residents in within 100 meters of the WWTP's north boundary. Such residences would likely detect odors emitted by the WWTP's operations during stable conditions or under Kona wind conditions when odors are directed north and northeast towards the residential and institutional uses north of the WWTP.

- A mechanical climber-type bar screen in one of the existing preliminary treatment facility's influent channels is no longer used. Debris accumulation in the screenings resulted in odor production and required frequent maintenance by the WWTP staff.
- The truck-loading area was identified as the principal cause of the odors (namely during loading activities), and a small granular activated carbon system was installed in the truck-loading bay and the truck vents were equipped with carbon filters. In addition, an odor-masking agent is utilized to reduce nuisance odors.
- In the past, odors were also associated with the sludge storage tank and gravity thickeners; however, these issues were resolved by removal of these units from use. The gravity thickeners were replaced by the DAF thickeners and one of the tanks is used for sludge storage. In addition, the DAF thickener tanks are equipped with an activated carbon system for odor control.

### **Impacts and Mitigation Measures**

The proposed project is anticipated to have short-term construction-related impacts on air quality, including the generation of dust and emissions from construction vehicles and equipment. The contractor will be responsible for complying with DOH Administrative Rules, Title 11, Chapter 60, "Air Pollution Control".

During the construction of the proposed WWTP improvements, two potential types of air pollution emissions will likely occur: 1) Fugitive dust from soil excavation and the movement of construction vehicles; and 2) Carbon monoxide and nitrogen oxide emissions from on-site construction equipment.

Construction activities must comply with the provisions of HAR, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust. Compliance with State regulations will require adequate measures to control fugitive dust by methods such as, but not limited to:

- Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;
- Providing an adequate water source at the project site prior to initiation of construction activities;
- Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;
- Controlling of dust from shoulders and access roads;
- Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities;
- Controlling dust from debris being hauled away from the project site; and
- Constructing dust barriers/fences.

The DOH recommends that a dust control management plan be developed to identify and address all activities that have a potential to generate fugitive dust, and the contractor will be responsible for the implementation of adequate dust control measures during all phases of development and construction activities.

Construction equipment and vehicles shall be properly maintained in order to control vehicular emissions. Exhaust emissions from construction equipment and vehicles are anticipated to have negligible impacts on air quality in the project vicinity, as emissions would be relatively small and readily dissipated.

The proposed project is not anticipated to generate a significant amount of odors during construction since the contractor will be required to schedule and plan all construction methods so as to allow continued sewer service and treatment during the installation of the new WWTP improvements (refer to Section 3.14.4, Wastewater System for more details). Any temporary facilities will be comprised of enclosed pumping/piping systems. Odors generated during construction activities will be temporary and minimal. Odors generated during construction should be similar to odor levels that are currently generated as a result of operating the WWTP.

Many of the Wahiawa WWTP's existing process units and structures will operate differently under the proposed improvements, and several of the improvement structures will make use and involve conversion of existing structures at the Wahiawa WWTP. There may potentially be a slight increase in the emission of pollutants in operating the WWTP based on the proposed improvements (e.g., additional pumps required to operate the system); however, such slight increases are not anticipated to significantly impact air quality.

As previously stated, the more common association of WWTPs with air quality is related to odors. All WWTP facilities by nature result in odor emissions, notwithstanding preliminary treatment facilities. Screenings and girt removal, part of the preliminary treatment facility, tend to be odorous. Therefore, in order to minimize the risk of potential nuisance odor emissions, the entire new preliminary treatment facility will be enclosed and a new biofilter odor control system will be implemented as a component of the proposed project. **Figure 6** presents the location of the new biofilters within the project site. Biofilters use a combination of absorption and adsorption mechanisms to capture odorous compounds from the air stream and then biological degradation by microorganisms living in the media to oxidize them. This new odor control system will significantly reduce the risk of odor nuisance.

Although the new flow equalization storage facilities will accommodate raw influent, these facilities will be used infrequently and will involve significant dilution with rain water due to inflow/infiltration into the wastewater collection system. Such flow equalization will only be required during peak wet weather flow conditions, which are temporary events that occur very intermittently.. Furthermore, these uncovered storage units will be located approximately 100 meters or more away from the residences along the WWTP's north boundary. The risk of potential nuisance odor emissions will be temporary in nature and, based on the significant dilution effects demonstrated using the EPA's model SCREEN3, the nearest residences would experience little odor effects when downwind of the plant.

It should be noted that while the risk of odors can be minimized, it cannot be eliminated. The affects of odors depend on the location of nearby residents and their individual sensitivity and tolerance to such smells. Therefore, potential odor impacts at the Wahiawa WWTP can be expected, particularly during periods of stable conditions and or Kona wind conditions. However, given the above mentioned mitigation and operational conditions, the new WWTP improvements are not expected to result in adverse significant odor impacts.

Overall, air quality impacts during construction will be temporary in nature and will cease upon completion of the construction. Moreover, the proposed improvements to the WWTP (i.e., the increased pumping and storage capacity on account of the new IPS and equalization of peak raw wastewater flow) will potentially have long-term beneficial odor impacts by decreasing the frequency and level of odors that are generated as a result of SSOs at the Wahiawa WWTP and throughout the Wahiawa wastewater collection system.

No significant adverse air quality is anticipated upon completion and during operation of the proposed project.

### 3.9. Surface Water Quality

As previously mentioned, the Wahiawa Reservoir is immediately adjacent to the project site. The reservoir receives water from the north and south forks of Kaukonahua Stream, and, since its construction in 1927, the Wahiawa WWTP has discharged its treated effluent into the reservoir. Wahiawa Reservoir is tributary to Kaukonahua Stream, which flows northward and joins Poamoho Stream to form Kiiiki Stream. Kiiiki Stream eventually drains and outlets to the ocean at Kaiaka Bay on Oahu's north shore. Refer to Section 3.5, Surface Water for more details regarding the hydrology of these surface waters.

The DOH has classified State waters as either inland or marine waters for purposes of applying the standards set forth in Chapter 11-54, HAR and for the selection or definition of appropriate water quality parameters and uses to be protected in State waters. The current version of HAR 11-54, dated August 31, 2004 and officially accepted on October 2, 2004, designates inland waters as "Class 1" and "Class 2" use categories and marine waters as "Class AA" and "Class A" use categories. (DOH, 2004) Both the north and south forks of Kaukonahua Stream are classified as Class 1 inland streams where they commence in the Koolau Mountain Range; however, upstream of and near the Wahiawa Reservoir these tributaries are classified as Class 2 inland streams. Wahiawa Reservoir, Kaukonahua Stream, and Kiiiki Stream are all classified as Class 2 inland waters. At the location where the Kiiiki Stream drains into the Kaiaka Bay on the north shore, the bay is classified as Class A marine waters by the DOH. (EPO, 1987)

Most recently, the DOH announced in September 2007 the completion of the *2006 State of Hawaii Water Quality Monitoring and Assessment Report: Integrated Report to the U.S. Environmental Protection Agency and the U.S. Congress Pursuant to Sections §303(d) and §305(b), Clean Water Act (P.L. 97-117)*, herein referred to as the 2006 Integrated Report. The 2006 Integrated Report is the first effort by the DOH to integrate both reporting requirements of the Clean Water Act Sections 305(b) and 303(d). EPA approval of the State's 2006 303(d) List of Impaired Waters (represented by those waterbodies assigned to Categories 4 and 5 in Chapter IV in the 2006 Integrated Report) is pending; therefore, until EPA approves the 2006 list, the *Final 2004 List of Impaired Waters in Hawaii Prepared Under Clean Water Act §303(d)* (June 2004) remains in effect.

According to the *Final 2004 List of Impaired Waters in Hawaii Prepared Under Clean Water Act §303(d)*, Kaiaka Bay and Kiiiki Stream are currently included on the State's 303(d) List of Impaired Waters. As tributaries to Kiiiki Stream and part of the

Kiikii Stream System, the listing as an impaired waterbody applies to Kaukonahua Stream (lower and upper [north and south forks] reaches) and Wahiawa Reservoir. The impairing pollutants of concern for which Kaiaka Bay is listed are: nutrients, suspended solids, and turbidity (nearshore waters to 60 ft from Puaena Point to a point 1.5 miles west of Kaiaka Point); enterococci, total nitrogen, nitrite, nitrate, ammonium, chlorophyll a, and turbidity (at Kaiaka Bay monitoring station # 000170). The impairing pollutants of concern for Kiikii Stream, including Kaukonahua Stream and Wahiawa Reservoir per the aforementioned, comprise nutrients and turbidity. The impaired status of the bay and stream system requires the DOH to develop and establish TMDLs limits for each pollutant of these waterbodies suggesting the quantity by which pollutant loads, including load allocations for point and nonpoint source discharges into its tributaries, should be reduced in order to attain Hawaii's water quality standards.

Waterbodies have been prioritized as High, Medium, or Low for TMDL development based on several factors, such as the number of pollutants listed and degree that levels of pollutants exceed the standard. Kaiaka Bay was given a Low priority for TMDL development, whereas the Kiikii Stream is listed as "TMDL segment in process". The *Final 2004 List of Impaired Waters in Hawaii Prepared Under Clean Water Act §303(d)* states that DOH contractors are developing TMDLs for the Kaiaka Bay Watershed – Kiikii Stream System (upper Kaukonahua Stream) and Wahiawa Reservoir. TMDL development for the Kiikii Stream System (upper Kaukonahua Stream) was expected to be complete in 2005, while TMDL development of Wahiawa Reservoir would be phased. It should be noted that currently TMDL limits do not exist for any of the abovementioned waterbodies.

It should be noted that per the 2006 Integrated Report and the State's 2006 303(d) List of Impaired Waters, all of the abovementioned waterbodies remain listed as impaired waterbodies and TMDL limits still do not exist for these waterbodies. Although the geographic scope/area for Kaiaka Bay in the 2006 listing covers a larger waterbody area than for the 2004 listing, the impairing pollutants of concern for Kaiaka Bay as presented on the State's 2006 303(d) list are the same. However, Kaiaka Bay is prioritized as Medium for TMDL development. The 2006 Integrated Report states that TMDLs for the upper (north and south forks) reaches of Kaukonahua Stream are expected to be completed in 2008, with ongoing phased TMDL development in Kaukonahua receiving waters (i.e., Wahiawa Reservoir, lower reaches of Kaukonahua Stream, Kiikii estuary, and Kaiaka Bay). In each case, TMDLs will be established for pollution by sediment, nutrients, and bacterial indicators. The upper (north and south forks) reaches of Kaukonahua Stream and Wahiawa Reservoir are prioritized as High for TMDL development. Also, the 2006 Integrated Report separates the Wahiawa Reservoir from its downstream receiving segment and upstream tributary segments, and establishes the reservoir for TMDL development and other intensive monitoring and analysis purposes.

### **Impacts and Mitigation Measures**

No significant adverse impacts to surface water quality within or downstream of the project site are anticipated to result from implementation of the proposed project.

Construction activities will not increase the volume of peak stormwater runoff or contribution of contaminants to stormwater runoff. Additionally, as stated in Section 3.5, Surface Waters, the proposed project will not involve construction activities or discharges within the bed or banks of any existing waterbodies.

The proposed project may have short-term construction-related impacts from erosion and sedimentation on water quality. The vast majority of the proposed WWTP improvements within the project area will utilize construction methods that do not require excavation or trenching activities. The implementation of such construction methods minimizes the potential for sediments to enter surface waters through stormwater runoff. While the proposed project may involve the use of excavation activities and open cut trench construction methods within the project site for construction of some of the proposed improvement structures and pipelines, erosion of soils due to site preparation and the construction of improvements is anticipated to be minimal.

Some wind erosion of soils could occur without a proper watering, and heavy rainfall could also cause erosion of soils within disturbed areas of the project site. All construction activities will comply with applicable federal, State, and County regulations and rules for erosion control. Appropriate erosion control measures and BMPs will be implemented to prevent pollutants from entering the surface waters during construction. Measures, such as installing silt fences at the base of all slopes and sediment barriers at storm drain inlets and repaving and revegetating areas as soon as practicable, will be applied as appropriate during construction of the proposed project. A NPDES General or Individual Permit for discharges into State waters composed entirely of storm water runoff associated with construction activities that result in the disturbance of one acre or more of total land area will be required for this project, and impacts will also be mitigated by complying with the conditions of this permit. A Notice of Intent to be covered by NPDES General Permit must be submitted to the DOH, Clean Water Branch at least 30 days before the commencement of construction activities. An application for a NPDES Individual Permit must be submitted at least 180 days before the commencement of construction activities. It is not anticipated that the construction activities will have an adverse surface water quality effect on adjacent and downstream water resources.

There are no long-term surface water quality impacts associated with the completion and operation of the proposed WWTP improvements. The project is not anticipated to induce additional runoff or increase the volume of peak stormwater runoff. The contribution of contaminants to stormwater runoff will not increase as a result of the proposed project. The project will appropriately restore pavements and revegetate areas that are disturbed during construction, to the extent practicable. Moreover, as stated in Section 3.5, Surface Waters, no permanent structures will be placed within the bed or along the banks of any waterbody as a result of the proposed project. No alteration of the bed or banks of Wahiawa Reservoir or Kaukonahua Stream are proposed.

In fact, implementation of the proposed project (i.e., the increased pumping and storage capacity on account of the new IPS and equalization of peak raw wastewater flow) will likely benefit surface water quality in Wahiawa Reservoir, Kaukonahua Stream, and Kiikii Stream as a result of the reduced potential for SSOs at the Wahiawa WWTP and throughout the Wahiawa wastewater collection system. Additionally, regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, production of R-1 quality water and enhancement of the effluent quality will potentially have beneficial impacts on any downstream, receiving surface waters.

### **3.10. Noise**

The Wahiawa WWTP is generally located in an area characterized by single-family homes, with some institutional and industrial uses in the immediate vicinity (see Section 2.2.3 for greater detail). The WWTP is located away from high volume roadways, in a relatively quiet residential area with residences located immediately adjacent to and along the site's northern boundary. Therefore, background ambient noise levels in the vicinity of the project site are determined to be relatively low (Y. Ebisu & Associates, 2007). Noise levels at the project site are primarily the result of current operations at the Wahiawa WWTP. Existing industrial operations that occur at the City and State corporation and base yards located east of the project site, may also be sources of ambient noise in the area.

An acoustical study was performed for the proposed COWFP project (Y. Ebisu & Associates, 2007), which describes the existing background ambient noise levels at the Wahiawa WWTP. The following describes the existing noise and noise control conditions at the Wahiawa WWTP as stated by the acoustical study:

- During October 2001, existing daytime and nighttime background ambient noise measurements were obtained at the Wahiawa WWTP with and without the emergency generator in operation. Noise measurements of 68 to 79 A-weighted decibel (dBA) were obtained in the immediate vicinity of the Generator Building

with the generator operating without load. Other measured sound levels were obtained with the generator off, and none of these levels were exceeded with the generator operating.

- The Odor Control Fan was the loudest noise source at the WWTP, with a measured noise level of 73 dBA at 26 feet from the center of the fan's enclosure. Noise levels of 53 dBA were measured at two locations along the plant's northern boundary and were associated with the Odor Control Fan, which exceeded the DOH's nighttime ambient noise level limit of 45 dBA.
- Noise emanates from the Reclamation Facilities Building's ventilated louvers on the west and south walls of the building, with a noise level of 58 dBA measured along the WWTP's west boundary. However, the risk of noise complaints west and south of the plant are considered to be low given the large buffer space provided by Wahiawa Reservoir.
- Noise levels near the Blower Building were measured at 55 and 69 dBA. However, risks of noise complaints from the Blower Building are considered to be low given the large buffer distances to the residences located north of the Wahiawa WWTP site.

The DOH regulated noise from stationary mechanical equipment and associated with construction activities. The DOH noise limits are expressed in maximum allowable property line noise limits rather than day-night average sound level, which incorporates a 24-hour average of instantaneous dBA levels as read on a standard sound level meter. Daytime hours are defined as being from 7:00am to 10:00 pm, and the nighttime period is considered to be the remaining hours per the DOH rules. For agricultural or industrial lands, the allowable limits are 70 dBA for daytime and nighttime periods along the property boundaries. The applicable DOH property line limits are 60 and 65 dBA during day and night hours, respectively, for properties zoned for apartment, hotel, or business uses. For single-family residences, public and open spaces, and preservation lands, the daytime and nighttime DOH limits are 55 and 45 dBA, respectively. The DOH noise limits for single- and multi-family residences are more stringent than the Federal Housing Administration/Housing and Urban Development's noise standard.

### **Impacts and Mitigation Measures**

Audible noise from construction activities will likely be unavoidable during the entire construction period. Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity and nature of some construction noise sources and due to the exterior nature of the work. Ambient noise levels in the vicinity of the project site will increase due to construction activities and the use of construction vehicles and equipment. Quieter construction activities, such as building erection and equipment installation, may not be audible. Overall, all noise impacts from construction

will be temporary in nature and will cease upon completion of the construction.

Unavoidable short-term construction noise impacts will be mitigated to some degree by the contractor's compliance with the provisions of the DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" noise regulations. These rules require a noise permit if the noise level from construction activity is expected to exceed the allowable levels stated in the Chapter 46 rules. It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment and to maintain noise levels within regulatory limits.

Potential noise impacts will also be mitigated by performing construction work during daytime hours (as opposed to night work). Daytime work will ensure minimal impacts to existing residences, including reducing the inconvenience of construction noise impacts to residents during nighttime hours. Wastewater flows may dictate that some construction work occur during nighttime hours; however, performing construction activities at night will be limited to the extent feasible and carried out only as necessary. It is anticipated that such nighttime construction activities will exceed allowable noise levels. A noise variance will be obtained prior to commencement of construction activities, in accordance with the Chapter 11-46 rules.

In the long-term, no significant adverse noise impacts are anticipated due to the completion and operation of the proposed WWTP improvements. There will be new noise sources as a result of operating the WWTP based on the proposed improvements (e.g., additional pumps required to operate the system). However, although improvements will generally include noise-producing equipment, noise control and mitigation measures will be implemented as part of the proposed project at those potential new noise sources. Therefore, potential adverse noise impacts will be minimized and noise generating machinery is not anticipated to significantly impact noise levels.

The primary new noise sources at the Wahiawa WWTP are expected to be located at the preliminary treatment facility, off-specification/effluent pump station, and biofilter odor control system. Preliminary treatment facilities are generally sources of audible noise, and the new preliminary treatment facility will be located within closer proximity to those residences located along the WWTP's northern boundary than under existing conditions. Therefore, in order to minimize and mitigate potential noise impacts, the entire new preliminary treatment facility will be enclosed as part of the proposed project improvements. This enclosure will significantly reduce the risk of noise

impacts. Additionally, the design of the off-specification/effluent pump station and biofilter odor control system will include noise control measures and acoustical treatments.

There is also potential for the new MBR system to result in operational noise impacts. There are various MBR vendors, and each MBR system has its own unique requirements. Therefore, based on the MBR system selected during the design phase, potentially adverse noise impacts associated with the new MBR system and its required equipment will be minimized through the addition of noise control measures, if necessary.

Acoustical treatments could include the following: silenced inlet and discharge air openings, interior wall and ceiling finish insulation, sound rated door assemblies, or two exhaust mufflers installed in series. Specific noise control measures and acoustical treatments will be selected during the design phase in order to achieve compliance with DOH noise limits, namely along the property's north boundary line.

As a component of the proposed project, the design and construction of a wall (e.g., solid concrete masonry unit wall) along the Wahiawa WWTP's northern boundary is being considered by the City. This feature will be evaluated during the design phase. In addition to serving as safety/privacy remediation, such a feature will also potentially reduce the risk of noise impacts generated as a result of operating the proposed WWTP improvements.

The currently existing noise sources identified during the aforementioned acoustical study are expected to continue to operate based on the proposed improvements, and the typical noise levels induced by these facilities are expected to continue. With regard to the Odor Control Fan that operates as part of the DAF thickener tanks' odor control system (an activated carbon system), the acoustical study findings and recommendations are as such: It appears that the Odor Control Fan may exceed DOH nighttime noise limits for those residences located immediately adjacent to and along the WWTP site's northern boundary. Therefore, the addition of noise control measures to the existing Odor Control Fan (e.g., sound attenuation enclosures with acoustically treated ventilation openings) is recommended in order to reduce noise levels to 45 dBA along the north boundary line. Implementation of this recommendation will be determined by the City separately from the WWTP improvements made as a result of this project.

### 3.11. Archaeological and Cultural Resources

The proposed project is located on a highly altered site: the Wahiawa WWTP site. Furthermore, the project site is located adjacent to and within a highly altered urban environment.

Archeological and cultural resources information was previously obtained for the Wahiawa area, to include the Wahiawa WWTP site, during the recent preparation of *An Archeological Inventory Survey for the Central Oahu Facilities Plan* (September 2007) and the *Cultural Impact Assessment for the Central Oahu Facilities Plan* (January 2007). The following describes the known archeological and cultural resources that were found to exist within Wahiawa based on review of previous surveys, performing literature searches and field surveys, and conducting interviews:

- Two sites have been previously recorded in the Wahiawa area approximately 2.5 miles northwest of the WWTP site; however, only one of these sites currently exists. The site, known as Kukaniloko, is located approximately 1,000 feet north of the north fork of Kaukonahua Stream. The site is one of two famous places in the Hawaiian Islands as a birthplace for children of tapu chiefs. Other notable sites in the Wahiawa region include the Wahiawa Healing Stone, the James D. Dole Plantation Homestead, and the O'ahunui Stone. No surface archeological sites were observed during the field inspection. Homestead lots developed in the 1890's became the basis for the development of Wahiawa town and, along with the existence of modern agriculture, urban development and human incursion, the area has been left completely altered with few signs of archeological evidence.
- Generally, much of the cultural resources that were once present in the Central Oahu region have been destroyed by extensive large-scale agricultural activities. Therefore, cultural activities that occur in the Wahiawa area are rather limited. Culturally significant activities occur at resources within the Wahiawa area. Kukaniloko Birthstone State Monument is of educational and spiritual importance. The site is a protected State Park that will continue to be protected and utilized by both Native Hawaiian and non-Hawaiians. Additionally, Hawaiian and Hindu worshipping occurs at the Wahiawa Healing Stone located directly across the street from the Wahiawa WWTP at a former cemetery on California Avenue. Finally, although not a traditional fishing area, Wahiawa Reservoir is an important recreational area. The reservoir has been used for recreational fishing for over 50 years.

Overall, there is relatively low probability of encountering historically-significant sites. There are no known archaeological sites on or adjacent to the project site.

### **Impacts and Mitigation Measures**

No significant adverse impacts to archaeological or cultural resources are anticipated to result from implementation of the proposed project.

Due to the highly urbanized nature of the area and given that excavation activities will occur within a project site that has been previously disturbed, it is unlikely that any subsurface archaeological resources will be encountered within the project site. Based on the aforementioned archeological inventory survey it was determined that no archeological sites are present at or in the vicinity of the Wahiawa WWTP site. It appears extremely unlikely that any potentially significant archeological resources will be encountered as a result of the proposed project activities, and the project thus has “no historic properties subject to effect.” (Pacific Legacy, Inc., 2007(a))

In addition, the majority of the proposed WWTP improvements to occur within the project site will utilize construction methods that involve aboveground work and activities. The potential for uncovering archaeological resources is minimal as there are no excavation or trenching activities associated with such work, and, therefore, no significant impacts to the subsurface are anticipated.

Nonetheless, with any construction project which involves land disturbance and alterations, there is always the possibility that human burials or other potentially significant subsurface archeological resources could be encountered. The proposed project may involve the use of excavation activities and open cut trenching within the project site for construction of some of the proposed WWTP improvements. Therefore, the following measures will be implemented: For all construction activities conducted in association with the proposed project, work will cease immediately if any historic remains or other potentially significant subsurface archeological resources are encountered during construction activities and the find will be protected from further damage. The contractor shall immediately contact the Historic Preservation Division of DLNR to assess the significance of the find and recommend an appropriate mitigation measure, if necessary.

No impacts to cultural resources or practices are anticipated. Culturally significant activities should not be affected during construction of the project as individuals will continue to have access to such cultural resources and be allowed to participate in those activities. Results of the above mentioned cultural impact assessment indicate that the proposed project will not affect any traditional cultural activities. The Kukaniloko site will continue to be cared for and utilized by Native Hawaiian and non-Hawaiians, and both Hawaiian and Hindu alike will continue to have access to and be allowed to worship at

the Wahiawa Healing Stone. In addition, the proposed project will not affect the fishing activities at the reservoir. (Pacific Legacy, Inc., 2007(b))

### **3.12. Visual Resources**

The current nature and use of the project site is for wastewater treatment. Specifically, the project site consists of and solely contains the Wahiawa WWTP. The site contains numerous aboveground wastewater treatment units and structures. A current layout of the plant and its structures is presented in **Figure 5**.

As discussed in Section 3.7, Floral and Faunal Resources, most of the vegetation within and adjacent to the project site consists of landscaping. The Wahiawa WWTP site has been landscaped with various ornamental and fruit trees. Additionally, the vegetation type adjacent to the project site's western and southern boundary (i.e., between the project site's boundary fencing and Wahiawa Reservoir) is denoted as Reforested Lakeside Vegetation with emergent trees and understory vegetation (including garden escapees, weeds, and obligate wetland vegetation) within this area.

The project site is bounded by the Wahiawa Reservoir to the west and south, the City's Wahiawa Corporation Yard to the east, and several privately-owned parcels with residential dwellings to the north. The character of Wahiawa Reservoir is scenic, with tall trees generally bordering its perimeter. The surrounding residential dwellings, institutional buildings, and industrial structures are primarily one-story. Fencing surrounds the boundaries of the entire project site.

#### **Impacts and Mitigation Measures**

Construction activities may affect the aesthetics of the surrounding community in the short-term. Given that the proposed construction activities will be performed entirely at the Wahiawa WWTP site, potential visual impacts will be associated primarily with vehicles and equipment accessing the project site. Although all construction activities will occur within the property boundaries of the Wahiawa WWTP site, off-site construction staging may be required due to the limited availability of space on the project site. Overall, any potential visual impacts from construction will be temporary in nature.

Completion and operation of the proposed WWTP improvement project is not expected to result in any significant adverse long-term impacts on visual resources. The current use and nature of the project site will not change as a result of implementing the proposed project. No changes in the ambient light level and night glow are proposed as part of the project. Although new aboveground structures will be constructed within the Wahiawa WWTP site as part of the proposed improvements, several of the improvement structures

will make use and involve conversion of existing structures at the plant. Additionally, minimum necessary setbacks and height constraints will be maintained for all newly constructed aboveground structures per DOH requirements and/or City ordinances. Of the new improvement structures proposed to be constructed on project site, the off-specification storage tanks are expected to be the largest in size (height and diameter). Therefore, as a component of the proposed project, potential visual impacts associated with these tanks will be mitigated and minimized by painting the tanks. An appropriate paint color will be selected in order to reduce visual impacts. In addition, the City is considering the design and construction of a wall (e.g., solid concrete masonry unit wall) along the Wahiawa WWTP's northern boundary (to be implemented as part of the proposed project). This feature will be evaluated during the design phase. Such a feature will potentially minimize potential visual impacts associated with the off-specification storage tanks.

Any existing vegetation or landscaping disturbed within the project site during construction activities will be restored and revegetated, to the extent practicable. Additionally, vegetation between the project site's boundary fencing and the Wahiawa Reservoir is not expected to be impacted by this proposed WWTP improvement project. The character of Wahiawa Reservoir will not change. Views to, from, and of the reservoir will not be negatively affected.

Overall, the general aesthetics of the project site, surrounding community, and reservoir are not anticipated to change as a result of the proposed project.

### **3.13. Socio-Economic Characteristics**

#### **3.13.1. Existing Businesses and Surrounding Uses**

As described in Section 2 and presented in **Figure 2**, the proposed project is located entirely at the site of the Wahiawa WWTP. The 6.1-acre parcel within TMK 7-3-07:002 that holds the Wahiawa WWTP is owned by the City. Therefore, the portions of the project site that will be affected by the proposed WWTP improvement project are under the jurisdiction of the City.

Generally, the project site is located in an area characterized by single-family homes, with some institutional and industrial uses in the immediate vicinity. Several TMK parcels are located immediately adjacent to the northern boundary of the Wahiawa WWTP site. These parcels are privately owned and are currently occupied by residents and tenants with residential uses. The Olive United Methodist Church, a small residential cul-de-sac, and Kaala

Elementary School are located directly opposite and north of the entrance to the WWTP. Various City and State corporation and base yards are located east of the Wahiawa WWTP, along California Avenue. The City's Wahiawa Corporation Yard adjoins the WWTP site on the east, and a major feature that bounds the project site to the west and south is the Wahiawa Reservoir. As presented in Section 2, **Table 1** and **Figure 2** provide information on the location and TMKs of the uses surrounding the project site.

During the preparation of the Draft EA, those recorded fee owners with properties neighboring the Wahiawa WWTP were consulted regarding the proposed project. In an additional effort to consult with the community regarding the proposed project, The Limtiaco Consulting Group attended a Neighborhood Board No. 26, Wahiawa/Whitmore Village "Special Meeting" held on December 12, 2007. The Limtiaco Consulting Group presented a description of the proposed WWTP improvement project. A copy of the agenda for the "Special Meeting" is provided in **Appendix A**. Further relevant details regarding the above described consultation efforts are presented in Section 8.1, Pre-Assessment Consultation.

### **Impacts and Mitigation Measures**

The proposed WWTP improvements and construction methods will minimize impacts to surrounding uses while addressing deficiencies and providing the necessary improvements at the Wahiawa WWTP. Short-term impacts to existing surrounding uses may occur in the following areas: residential inconveniences, institutional operations, and pedestrian and vehicular traffic. Residents and institutions to be affected by construction activities will be notified by the City or by the contractor prior to the commencement of construction activities.

The proposed project is located entirely at the site of the Wahiawa WWTP—a parcel owned by the City. Therefore, the portions of the project site that would be affected by the proposed WWTP improvement project are under the jurisdiction of the City. As previously stated in Section 2.3.2, the proposed project would not require the acquisition of new permanent easements as all of the proposed project improvements can be accomplished within existing property boundaries and easements held by the City. Further, temporary construction easements would not be required for the proposed project. If for some reason temporary construction easements are necessary, they will be obtained during the design phase prior to construction activities.

Access to the project site will be via the WWTP's private entrance driveway. As such, entry and construction activity on private property is not expected. Appropriate traffic control devices and warning signs will be installed and construction workers will direct traffic flow, when necessary. No traffic lane closures or traffic detours are expected in conjunction with construction activities; however, if they are necessary, traffic and pedestrian detours (via a City-approved traffic control plan) will be provided.

Although all construction activities will occur within the property boundaries of the Wahiawa WWTP site, off-site construction staging may be required due to the limited availability of space on the project site. If an off-site construction staging area is required, applicable permits and approvals and any necessary temporary construction easements will be obtained prior to construction. To the extent practicable, the temporary off-site construction staging area will be restored to pre-existing conditions upon the completion of construction activities.

The impacts of construction activities will be primarily mitigated by scheduling work during daytime hours (as opposed to night work). Daytime work will ensure minimal impact to existing residences adjacent to the project site, including reducing the inconvenience of construction noise- and dust-related impacts to residents during nighttime hours. Furthermore, traffic volumes are generally low within the residential neighborhoods adjacent to the project site during daytime hours. With the WWTP site located near a school and a church, the appropriate administrators will be notified of the construction schedule and coordinated with as appropriate throughout the design and construction phases.

Wastewater flows may dictate that some construction work occur during nighttime hours; however, performing construction activities at night will be limited to the extent feasible and carried out only as necessary. It is anticipated that such nighttime construction activities will exceed allowable noise levels. As indicated in Section 3.10 above, a noise variance will be obtained prior to commencement of construction activities, in accordance with the Chapter 11-46 rules.

During the night, all associated construction equipment will be secured and located within the project site and/or temporary off-site construction staging area (if necessary) so as not to impede nighttime activities. Open trenches outside of the project site's boundaries are

not expected, and any on-site open trenches associated with the project's construction activities will be covered with steel plates during hours when construction operations are not occurring. Traffic and pedestrian detours will be provided within the project site as necessary.

Minimum necessary setback and height constraints will be maintained for all newly constructed improvement structures per DOH requirements and/or City ordinances. Additionally, as addressed in the appropriate sections of this EA, any potential operational air quality, noise, or visual impacts will be minimized and mitigated through measures implemented as part of the proposed project. For example, as a component of the proposed project, the design and construction of a wall (e.g., solid concrete masonry unit wall) along the Wahiawa WWTP's northern boundary is being considered by the City for purposes of safety/privacy remediation and the potential minimization of noise or visual impacts. This feature will be evaluated during the design phase.

The proposed project will in fact restore the Wahiawa WWTP's hydraulic capacity and improve treatment reliability. Therefore, the project will provide long-term benefits to residents, businesses, and institutions by implementing measures to significantly reduce the potential for SSOs at the Wahiawa WWTP and throughout the Wahiawa wastewater collection system that would adversely affect public health and safety. Moreover, regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, production of R-1 quality water and enhancement of the effluent quality will potentially benefit any downstream users.

Overall, potential impacts or inconveniences that may occur to residents and surrounding institutions during construction of the proposed project will be temporary in nature and will cease upon completion of the construction. There are no adverse long-term socio-economic impacts anticipated due to the completion and operation of the proposed project.

### **3.13.2. Police, Fire and Ambulance Service**

Police: Police protection services in the vicinity of the project site are provided by the City and County of Honolulu, Honolulu Police Department (HPD). The project site is located within HPD's Patrol District 2, which is bounded by the Waianae mountains on the west, Kipapa Gulch and Waiahole Stream on the south, the Koolau mountains on the east, and the shoreline

from Kaena Point to Sunset Beach on the north. The administrative offices for District 2 are located in the Wahiawa Police Station located at 330 North Cane Street, approximately one mile east of the project site. (HPD, n.d.)

Fire: Fire protection services are provided by the City and County of Honolulu, Honolulu Fire Department. The nearest fire station in the vicinity of the project site is the Wahiawa Fire Station (Station 16) located on California Avenue, approximately 0.5 mile east of the project site. (HFD, 2007)

Ambulance: The nearest Emergency Medical Service ambulances are based at the Wahiawa General Hospital, approximately one mile east of the project site.

### **Impacts and Mitigation Measures**

The existing residences and institutions adjacent to and in vicinity of the project site may occasionally require police, fire, and ambulance services. Given that the proposed project is located entirely at the site of the Wahiawa WWTP, this project should have minimal impacts on police, fire, and ambulance operations or their ability to provide adequate services to the surrounding area. Additionally, the proposed WWTP improvement project will not affect the demand for such services as the project would not increase the resident population or visitors to the area. The project site is located within existing service areas. Therefore, no mitigation measures associated with police, fire, and ambulance services are necessary.

## **3.14. Infrastructure and Utilities**

The following section includes discussions regarding roadways and utility lines, including water, drainage, wastewater, electrical, telephone, cable, and gas lines.

### **3.14.1. Roadways and Traffic Considerations**

Vehicular access to the project site is provided via a private entrance driveway located along California Avenue (**Figure 2**). In the vicinity of the project site, California Avenue is a connector roadway that parallels the Wahiawa WWTP site's northern boundary and carries traffic in the east-west direction. Two through lanes (one in each direction) accommodate traffic along California Avenue in the vicinity of and adjacent to the project site. Approximately 0.5 mile east of the Wahiawa WWTP's driveway entrance, California Avenue intersects with South Kamehameha Highway, a major five lane (two in each direction with a center turn-lane) north-south thoroughfare.

In the vicinity of and adjacent to the project site, California Avenue typically carries traffic to and from the single-family homes and institutional uses (namely, the Olive United Methodist Church and Kaala Elementary School). Traffic along the stretch of California Avenue between South Kamehameha Highway and the Wahiawa WWTP's private entrance also includes large and small vehicles associated with the City's Wahiawa Corporation Yard and Wahiawa WWTP. Traffic operations along the roadways adjacent to the project site are under the jurisdiction of the City and County of Honolulu, Department of Transportation Services (DTS). Public transit system buses also operate along California Avenue with a bus stop located directly across from and north of the WWTP's entrance. The public transit system is administered by the DTS through its contractor, Oahu Transit Services, Incorporated.

The stretch of California Avenue between South Kamehameha Highway and the Wahiawa WWTP's private driveway entrance is rather wide. Although parked cars can be found along the shoulders of this section of California Avenue, the roadway's width provides available clearance for larger vehicles.

Sidewalks are located along either side of California Avenue in the vicinity of and adjacent to the project site. Between South Kamehameha Highway and the WWTP's entrance, the sidewalk is separated from the roadway at various locations and the south sidewalk appears to terminate at the Wahiawa WWTP's driveway entrance. There are crosswalks located along California Avenue between South Kamehameha Highway and the project site; however, a crosswalk does not traverse the Wahiawa WWTP's private entrance driveway.

### **Impacts and Mitigation Measures**

The proposed project is anticipated to have minimal short-term construction impacts on traffic. Given that the proposed construction activities will be performed entirely at the Wahiawa WWTP site, potential traffic impacts will be associated primarily with vehicles and equipment accessing the project site. Although all construction activities will occur within the property boundaries of the Wahiawa WWTP site, off-site construction staging may be required due to the limited availability of space on the project site. Overall, disruptions to vehicular and pedestrian traffic will be minimal, and any traffic impacts from construction will be temporary in nature.

Construction vehicles, equipment, and materials will access the project site via the WWTP's private entrance driveway along California Avenue. The area in the vicinity of and adjacent to the project site is

accustomed to frequent traffic and use by large and small vehicles and equipment associated with the industrial uses which currently exist along California Avenue. The width of California Avenue also provides available clearance for larger vehicles and a temporary, off-site construction staging area (if necessary). Overall, the roadways can accommodate the construction traffic that would be associated with the project, and currently existing traffic patterns and roadway layouts will remain the same during construction activities. No traffic lane closures or traffic detours are expected in conjunction with construction of the proposed project. In addition, no sidewalks or bus stop areas are expected to be affected by the proposed project and/or subject to construction impacts.

Appropriate traffic control devices and warning signs will be installed and construction workers will direct traffic flow, when necessary. Although no traffic lane closures or traffic detours are expected in conjunction with construction activities, if they are necessary, a City-approved traffic control plan shall be prepared prior to the construction of the proposed WWTP improvements. Additionally, a traffic control plan will be prepared if an off-site construction staging area is required. A street usage permit may be required and will be obtained prior to construction activities if such a temporary off-site staging area is within the City right-of-way.

Coordination with both the DTS and Oahu Transit Services, Inc. will also be carried out to ensure minimal inconvenience to motorists and public transportation services. Both entities will be informed of the project construction schedule prior to the commencement of construction activities.

The majority of construction work will be scheduled during daytime hours (as opposed to night work), when traffic volumes are generally low within the residential neighborhoods adjacent to the project site. With the project site located near a school and a church, the appropriate school and church administrators will be notified of the construction schedule and coordination activities will be executed as appropriate throughout the design and construction phases.

Although wastewater flows may dictate that some construction work occur during nighttime hours, the performing of construction activities at night will be limited to the extent feasible and carried out only as necessary. During the night, all associated construction equipment will be secured and located within either the project site or the designated

off-site construction staging area (if one is necessary) so as not to impede nighttime traffic. Open trenches outside of the project site's boundaries are not expected, and any on-site open trenches associated with the project's construction activities will be covered with steel plates during hours when construction operations are not occurring to allow vehicular and pedestrian movement within the project site. Traffic and pedestrian detours will be provided within the project site as necessary.

There are no adverse long-term traffic related impacts associated with the completion and operation of the proposed WWTP improvement project. Currently existing vehicular and pedestrian traffic patterns and roadway layouts will remain the same as pre-existing conditions. In addition, the quantity and frequency of trucks used to transport and haul sludge to the Honouliuli WWTP are expected to remain approximately the same based on the collective improvements proposed at the Wahiawa WWTP.

#### **3.14.2. Water System**

Topographic surveys have been performed throughout the entire project site in support of the design phase. This effort was completed in May 2007. The topographic surveys previously conducted indicate that there is a water system internal to the project site. The surveys include information on underground water utility lines that traverse the project site.

So as to obtain and verify information regarding the location of water system utilities within the project site, The Limtiaco Consulting Group requested as-built plans from the BWS in October 2007 of the water system within the project site. In their follow-up correspondence, the BWS stated that there are no records of BWS-operated and -maintained water utilities associated with the project site. Specifically, their as-built drawings do not show any water utilities located within the project site's boundaries and a BWS water meter is not assigned to the project site.

Therefore, current uses within the project site do not receive water service from the BWS. As indicated by the topographic surveys, the water system is internal to the Wahiawa WWTP site and includes underground utility lines.

#### **Impacts and Mitigation Measures**

The majority of the proposed improvements within the project site will utilize construction methods that do not require excavation or trenching

activities. Therefore, no significant impacts to the subsurface are anticipated.

While the proposed project may also involve the use of excavation activities and open cut trench construction methods for some of the proposed WWTP improvements, the aforementioned topographic surveys previously performed in support of the design phase identified the location of underground water utility lines within the project site. Additionally, the requests for utility information made by The Limtiaco Consulting Group to the BWS in October 2007 verified the indication that the water system is internal to the Wahiawa WWTP site. The location of all water system utilities will be verified, and the proposed project will seek to avoid any disruptions to water service and damage to the water system.

Short-term construction impacts may possibly affect the water system utilities within the project site. To avoid any infrastructure conflicts and any damage to the water distribution system, the DDC will review and approve the construction drawings. It is possible that utility relocations may be required. The need for utility relocations would be investigated further and verified during the design phase.

There are no long-term water system impacts associated with the completion and operation of the proposed WWTP improvement project. The proposed project will not induce any additional water demand within and in the vicinity of the project site.

### **3.14.3. Drainage System**

The topographic surveys previously performed throughout the entire project site (completed in May 2007) in support of the design phase indicate that there is a storm drain system internal to the project site. This storm drain system consists of inlets and underground drain pipes that collect stormwater runoff from locations throughout the project site and discharge at a single point located along the southern property boundary of the Wahiawa WWTP site. From this discharge point, the runoff flows into Wahiawa Reservoir.

As mentioned in Section 3.5, Surface Waters, the Wahiawa Reservoir receives water from and overflows into Kaukonahua Stream. Therefore, runoff collected by the WWTP site's internal storm drain system eventually drains into the Kaukonahua Stream and outlets to the ocean at Kaiaka Bay on Oahu's north shore.

In order to gather and verify information regarding the existing storm drain system within the project site, in October 2007, The Limtiaco Consulting Group requested as-built plans from the City of the storm drain system within the project site. Records of the storm drain system within the project site were not available.

### **Impacts and Mitigation Measures**

The vast majority of the proposed WWTP improvements within the project site will involve the placement and installation of structures and pipelines aboveground. For example, several of the improvement structures will make use and involve conversion of existing structures at the Wahiawa WWTP. As there are no excavation or trenching activities associated with these construction methods, no significant impacts to the project site's internal storm drain system are anticipated.

While the proposed project may also involve the use of excavation activities and open cut trench construction methods for some of the proposed WWTP improvements, the aforementioned topographic surveys previously performed in support of the design phase identified the location of storm drain system utilities within the project site. The location of all underground storm drain utility lines will be verified, and the proposed project will seek to avoid any infrastructure conflicts and any damage to the storm drain system. It is possible that utility relocations may be required. The need for utility relocations would be investigated further and verified during the design phase.

Short-term construction impacts may possibly affect the storm drain system in the project site. To avoid any infrastructure conflicts and any damage to the storm drain system, the DDC will review and approve the construction drawings. Further, as mentioned in Section 3.9, Surface Water Quality, appropriate measures will be implemented to prevent pollutants from entering the storm drain system during construction. Such measures may include installing sediment barriers at storm drain inlets and repaving and revegetating areas as soon as practicable. In addition, as storm water runoff discharges into State waters associated with construction activities resulting in the disturbance of equal to or greater than one acre of total land area will be required for the proposed project, a NPDES permit will be acquired for this project and the appropriate conditions will be applied during construction activities.

There are no long-term drainage impacts associated with the completion and operation of the proposed WWTP improvements. The

project is not anticipated to induce additional runoff within and in the vicinity of the project site. Expansion of the Wahiawa WWTP's internal storm drain system is not anticipated; however, this will be evaluated more fully and addressed during the design phase.

#### **3.14.4. Wastewater System**

The project site consists of and solely contains the Wahiawa WWTP, which is part of the City's municipal wastewater collection system. The Wahiawa WWTP serves a total of approximately 1,610 acres comprised of the communities of Wahiawa and Whitmore Village and the U.S. Navy's NCTAMS PAC. While the Wahiawa WWTP is currently designed for an ADWF of 2.5 mgd, its present dry weather daily flow is approximately 2.0 mgd of wastewater generated within the Wahiawa service area.

Since its construction in 1927, effluent from the plant has been discharged into Wahiawa Reservoir. Originally a primary treatment plant, the Wahiawa WWTP underwent a secondary treatment upgrade in 1967 and a tertiary treatment upgrade completed in December 2002. The tertiary treatment upgrade included such things as new secondary clarification, adding a sand filtration and UV disinfection processes, a new deep-water outfall into Wahiawa Reservoir, solids handling upgrades, and a new operations building. **Figure 5** shows a current layout of the plant.

The principal unit operations and processes at the Wahiawa WWTP are preliminary treatment, primary sedimentation, aeration, secondary clarification, filtration, disinfection, and solids handling. Primary sludge and WAS are thickened using dissolved air flotation, then hauled by truck to the Honouliuli WWTP for stabilization and dewatering prior to being trucked to a landfill. An emergency diesel generator is used to power the Wahiawa WWTP during outages.

As noted in Section 2, the existing Wahiawa WWTP located within the project site is proposed for improvement. Assorted problems and deficiencies were identified at the Wahiawa WWTP in support of the proposed project as part of the Alternatives Analysis Report (see Section 2.2.4 for details). Improvements are needed to address existing and future deficiencies (as projected through year 2020) at the WWTP for more reliable and continued adequate sewer treatment service, while also taking into account that future improvements are planned for the facility. Specifically, the proposed improvements seek to restore the WWTP's hydraulic capacity, improve the WWTP's wastewater treatment reliability, reliably produce R-1 quality water, and meet regulatory compliance requirements. Continued deficiencies and problems at the plant

could compromise the sewer treatment service for the Wahiawa wastewater service area.

### **Impacts and Mitigation Measures**

The proposed WWTP improvement project will address existing and future deficiencies at the Wahiawa WWTP, while also taking into account that future improvements are planned for the facility. Completion of the proposed project will result in restoration of the WWTP's hydraulic capacity and improvement of the WWTP's reliability in treating wastewater. Moreover, the proposed improvements will allow the City to reliably produce R-1 quality recycled water and include treatment upgrades required to meet Consent Decree requirements.

Given the nature of the project, all construction methods will be scheduled and planned so as to maintain continued sewer service and treatment during construction. The proposed front-end improvements allow for a high degree of flexibility in construction sequencing: the new preliminary treatment facility will be constructed off-line and independent of the existing IPS, and the Wahiawa WWTP's existing influent sewer line can be easily switched over and diverted to this new structure. Construction sequencing associated with the back-end improvements is less flexible and will require close coordination with plant staff to facilitate the switch over. The erection of temporary facilities may be required in order to continue service and treatment during construction of the back-end improvements (i.e., installation of and conversion to MBR).

The long-term beneficial impacts of the project will be realized by enhancing the performance of the overall treatment processes at the Wahiawa WWTP. The proposed project will involve improvements to the existing Wahiawa WWTP such that the plant can more reliably and adequately continue to serve the Wahiawa wastewater service area while reliably producing R-1 quality recycled water for the most liberal reuse applications recognized by DOH. Overall, the proposed project will allow for more environmentally sound treatment and disposal of wastewater.

#### **3.14.5. Electrical, Telephone, Cable, and Gas Service**

As part of preparation of the Alternatives Analysis Report, Hawaiian Electric Company, Inc. (HECO), Hawaiian Telcom, Oceanic Time Warner Cable

(Oceanic), and The Gas Company were consulted regarding the possible impacts to their businesses during the construction period.

Electrical Service: Topographic surveys were previously conducted throughout the entire project site in support of the design phase for the proposed project. Completed in May 2007, this effort included information on and indicated the presence of aboveground and underground electrical facilities within the project site.

Current uses within the project site receive electrical service from HECO. In order to verify the information regarding the location of all electrical utilities within the project site, in October 2007 The Limtiaco Consulting Group requested information regarding HECO's facilities within the project site. HECO provided The Limtiaco Consulting Group with as-built drawings. The as-built drawings confirmed the locations of the existing aboveground and underground electrical facilities as delineated during the topographic surveys. There are two pad mounted primary switches and two pad mounted transformers located within the northern portion of the project site, just west of the sludge loading area. Aboveground electrical utility lines traverse the northern boundary of the project site, and, immediately north of the transformer pads, these aboveground lines connect to additional overhead electrical lines which extend south-southeast across the project site and beyond its boundaries. The aboveground electrical equipment is connected via underground electrical lines to the aforementioned overhead lines along the project site's northern boundary.

Telephone Service: The topographic surveys previously conducted throughout the entire project site (completed in May 2007) in support of the design phase for the proposed project did not contain information on telephone facilities. So as to obtain and verify information regarding the location of any telephone utilities within the project site, The Limtiaco Consulting Group requested information from Hawaiian Telcom in October 2007 regarding their existing telephone utilities. Per the as-built plans provided by Hawaiian Telcom, Hawaiian Telcom's existing telephone facilities within the project site are situated both aboveground and underground. Aboveground telephone facilities extend along the entire length of the project site's northern boundary. Connecting to the aboveground telephone facilities, underground telephone utilities run south from the project site's northern boundary to the WWTP's Blower Building.

Cable Service: Topographic surveys previously conducted in support of the design phase for the proposed project included information on underground cable facilities. This effort was completed in May 2007.

In an effort to gather and verify information regarding the location of all cable utilities within the project site, The Limtiaco Consulting Group contacted Oceanic in October 2007. The existing cable facilities within the project site consist of aboveground and underground cables as presented by as-built drawings provided to The Limtiaco Consulting Group. In addition to providing as-built drawings, Oceanic indicated in a letter dated October 26, 2007 that Oceanic's infrastructure is located in the box and ducts of the communication system at the WWTP. All underground cable facilities within the project site are not currently owned by Oceanic; all occupied pull-boxes and conduits are owned and maintained by the City. Oceanic's aboveground cable utilities are situated along the northern boundary of the project site and extend south to the WWTP's Control Building. Underground cable utilities then continue south from the WWTP's Control Building toward the Blower Building and then eastward, ending at the Operations Building.

Gas Service: Topographic surveys were previously conducted throughout the entire project site in support of the design phase for the proposed project. Completed in May 2007, this effort did not indicate the presence of any gas utilities.

In October 2007, The Limtiaco Consulting Group requested information from The Gas Company with the aim of gathering and verifying the locations of any existing gas distribution system utilities within the project site. The Gas Company indicated that they do not maintain any utility gas facilities within the project site in a letter dated October 23, 2007.

### **Impacts and Mitigation Measures**

The majority of the proposed WWTP improvements within the project site will involve the placement and installation of structures and pipelines aboveground. While these construction methods typically involve minimal anticipated subsurface impacts, the proposed project may involve the use of excavation activities and open cut trench construction methods for installation of some of the improvement structures and pipelines.

The aforementioned topographic surveys performed in support of the design phase (completed in May 2007) identified the location of electrical and cable facilities within the project site. In addition, the requests for utility information made by The Limtiaco Consulting Group to the various utility companies in October 2007 identified the location of electrical, telephone, and cable facilities within the project site.

The location of all aboveground and underground utilities will be verified, and the proposed project will seek to avoid any infrastructure conflicts, disruptions, and damage to these utility services. Two sets of the construction plans for the proposed WWTP improvement project will be submitted for HECO review. Additionally, it is recognized that HECO will need continued access to its facilities and easements located within the project site for maintenance purposes. At the recommendation of Hawaii Telcom, toning for underground telephone facilities will be performed prior to excavation activities or open cut trenching in order to determine their exact location. At the request of Oceanic, notification of any potential changes or upgrades to the existing communication system will be made in order to minimize impacts to their cable services. It is possible that utility relocations may be required, and the need for such utility relocations will be investigated further and verified during the design phase. HECO, Hawaiian Telcom, and Oceanic will be notified of the construction schedule and coordination activities will be executed as appropriate throughout the design and construction phases.

Long-term impacts to electrical, telephone, cable, and gas service within the project site are not anticipated with regard to completion and operation of the proposed WWTP improvement project. The proposed project will not induce any additional telephone, cable, or gas demand within and in the vicinity of the project site. On the other hand, expansion of the Wahiawa WWTP's electrical system will be evaluated more fully and addressed during the design phase. Many of the Wahiawa WWTP's existing process units and structures will operate differently under the proposed improvements, and several of the improvements will make use and involve conversion of existing structures at the Wahiawa WWTP. Such process units and structures may operate less frequently and intensely than under current operational conditions. Nonetheless, there may potentially be a slight increase in the demand for electricity in operating the WWTP based on the proposed improvements (e.g., additional pumps required to operate the system). It is recognized that if any new or upgraded electrical service is needed and any new HECO facilities are required, HECO shall be notified immediately and negotiation of additional easements (which may be necessary) will be executed as appropriate throughout the design phase. Additionally, costs estimates associated with any new or upgraded electrical service and any new electrical facilities will be prepared during the design phase.

## 4. RELATIONSHIP TO PLANS, POLICIES, AND CONTROLS

### 4.1. State Land Use District

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 for Hawaii's people. All lands in the State are classified into four land use districts by the State of Hawaii, Land Use Commission: Urban, Agricultural, Conservation, and Rural.

Comment:

The entire project site is within the State "Urban" district, and the existing WWTP facility is allowed per this zoning designation. Therefore, the proposed WWTP improvement project is consistent with this designation.

### 4.2. Hawaii State Plan

The Hawaii State Plan, HRS Chapter 226, outlines broad goals, policies and objectives to serve as guidelines for the future growth and development of the State. The plan includes the following objectives, policies, and priority guidelines relating to the subject project:

*§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 Hawaii's land, air, and water resources.*

*(b) To achieve the land, air, and water quality objectives, it shall be the policy of this State to:*

*(2) Promote the proper management of Hawaii's land and water resources.*

*(3) Promote effective measures to achieve desired quality in Hawaii's surface, ground, and coastal waters.*

*(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawaii's people.*

*§226-15 Objective and policies for facility systems – solid and liquid wastes.*

*(a) 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 for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.*

(b) *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.*

(2) *Promote re-use and recycling to reduce solid and liquid wastes and employ a conservation ethic.*

(3) *Promote research to develop more efficient and economic treatment and disposals of solid and liquid wastes.*

§226-16 *Objective and policies for facility systems - water.*

(b) *To achieve the facility systems water objective, it shall be the policy of this State to:*

(3) *Reclaim and encourage the productive use of runoff water and waste water discharges.*

Comment:

Overall, the proposed project responds to and is consistent with the above objectives and policies by providing improvements to the Wahiawa WWTP that support statewide social, economic, and physical objectives. The WWTP improvements will have no significant long-term impact on the natural environment, including surface and coastal water quality and air quality. Specifically, the proposed project seeks to enhance the quality of the plant's effluent, which in turn would enhance and benefit the Wahiawa Reservoir. The proposed project will accommodate the needs of the Wahiawa wastewater service area and maintain basic public health and sanitation standards relating to treatment and disposal of wastes as it restores the plant's hydraulic capacity and improves treatment reliability. Finally, the design of the proposed improvements at the Wahiawa WWTP involves the use of efficient and economic treatment while seeking to produce R-1 quality water for potential reuse and recycling.

#### **4.3. City and County of Honolulu General Plan**

The General Plan of the City and County of Honolulu sets forth broad statements of social, economic, environmental, and design objectives and policies which are desired over the long-term. The following policies and objectives are relevant to the subject project:

### III. Natural Environment

*Objective A To protect and preserve the natural environment.*

*Policy 1: Protect Oahu's natural environment, especially the shoreline, valleys, and ridges from incompatible development.*

*Policy 7: Protect the natural environment from damaging levels of air, water, and noise pollution.*

### V. Transportation and Utilities

*Objective B To meet the needs of the people of Oahu for an adequate supply of water and for environmentally sound systems of waste disposal.*

*Policy 3: Encourage the development of new technology which will reduce the cost of providing water and the cost of waste disposal.*

*Policy 5: Provide safe, efficient, and environmentally sensitive waste-collection and waste-disposal services.*

*Policy 6: Support programs to recover resources from solid-waste and recycle wastewater.*

*Objective C To maintain a high level of service for all utilities.*

*Policy 1: Maintain existing utility systems in order to avoid major breakdowns.*

*Policy 2: Provide improvements to utilities in existing neighborhoods to reduce substandard conditions.*

*Policy 3: Plan for the timely and orderly expansion of utility systems.*

*Objective D To maintain transportation and utility systems which will help Oahu continue to be a desirable place to live and visit.*

*Policy 1: Give primary emphasis in the capital-improvement program to the maintenance and improvement of existing roads and utilities.*

#### Comment:

The proposed project is consistent with the policies and objectives listed above. The completion of the proposed project will result in restoration of the existing Wahiawa WWTP's hydraulic capacity, improvement of the plant's reliability in treating wastewater, production of R-1 quality recycled water, and compliance with regulatory requirements. Overall, the WWTP improvements are not anticipated to have any significant long-term impacts on air quality, water quality, or noise levels. In fact, the proposed project seeks to enhance the quality of the plant's effluent, which in turn would enhance and benefit the Wahiawa Reservoir.

The proposed project would involve improvements to the existing Wahiawa WWTP, such that the plant can more reliably and adequately continue to serve the present land uses in the Wahiawa wastewater service area. Given

the nature of the project, all construction methods will be scheduled and planned so as to maintain continued sewer service and treatment during construction. The improvements will enhance performance of the overall treatment processes at the Wahiawa WWTP, thereby, allowing for more environmentally sound treatment and disposal of wastewater. The design of the proposed improvements at the Wahiawa WWTP involves the use of efficient and economic treatment while seeking to produce R-1 quality water for potential reuse and recycling.

#### **4.4. Central Oahu Sustainable Communities Plan**

The Island of Oahu is divided into eight Development Plan areas; the plans for six of these areas have been designated as Sustainable Community Plans. Each plan implements the objectives and policies of the General Plan and serves as a guide for public policy, investment, and decision making within each respective region. Together with the General Plan, they guide population and land use growth over a 20- to 25-year time span.

The project site is located within the region encompassed by the *Central Oahu Sustainable Communities Plan*. A major revision of the Development Plans, based on a 1992 City Charter change, was recently completed. The revised plans are visionary, conceptual plans without the parcel specific detail of the first Development Plans adopted in the early 1980s. The *Central Oahu Sustainable Communities Plan* Revision Program was completed in December 2002.

The *Central Oahu Sustainable Communities Plan* revision incorporates input received from public outreach, review, and comments received through a variety of formats since 1993. The revised plan establishes policy to shape the growth and development of the Central Oahu over the next 25 years. Chapter 1 defines the region's role and identity; Chapter 2 sets forth the overall vision for Central Oahu; Chapter 3 is the plan's policy core with policy guidance for the region's various land uses; Chapter 4 outlines the policies, principles, and actions needed to support the land use policies; and Chapter 5 discusses the plan implementation.

The revised *Central Oahu Sustainable Communities Plan* indicates that the project site is within the area designated as Agriculture and Preservation Areas, with a symbol for an existing WWTP. The project site is shown and recognized as an existing WWTP on both the plan's "Urban Land Use map" and Public Facilities Map" in Appendix A of the *Central Oahu Sustainable Communities Plan*.

The plan includes the following infrastructure and public facilities policies applicable to the subject project:

#### 4.2.1. WATER ALLOCATION AND SYSTEM DEVELOPMENT – GENERAL POLICIES

*An adequate supply of non-potable water should be developed for irrigation and other suitable uses in Central O‘ahu in order to conserve the supply of potable water.*

*The City will reclaim wastewater effluent and distribute non-potable water, provided that customers can be found for this source of non-potable water, and that no threat is posed to the quality of the potable water aquifer.*

#### 4.3.1. WASTEWATER TREATMENT – GENERAL POLICIES

*Where feasible, effluent should be treated and used as a source of non-potable water for irrigation and other uses below the UIC line of the DOH and the “No-Pass” Line of the BWS. Above the UIC line and “No Pass” line, use of tertiary treated effluent (R-1 Quality) for irrigation purposes may be appropriate if approved by the DOH and BWS.*

*Wastewater treatment plants should generally be located in areas shown as planned for industrial use and away from residential areas shown on the Urban Land Use Map in Appendix A. Existing treatment plants are shown on the Urban Land Use Map and Public Facilities Map in Appendix A.*

#### 5.1.1. DEVELOPMENT PRIORITIES – PUBLIC FACILITY INVESTMENT PRIORITIES

*The regional directed growth strategy requires the cooperation of both public and private agencies in planning, financing, and constructing infrastructure. The City should take an active role in planning infrastructure and coordinating the expansion of Honouliuli Wastewater Treatment Plant and reuse of its effluent, improvement of the Wahiawa Treatment Plant, provision of recreational open spaces, and development of the regional transportation system, parks, and police and fire facilities.*

Of Oahu’s eight Development Plan areas, each area has a Public Infrastructure Map (PIM) with exception to the Primary Urban Center planning area. The PIMs are administered by the City and County of Honolulu, Department of Planning and Permitting (DPP). Each PIM is adopted by City Council resolution, and revised by resolution in accordance with Section 4-8.1, Revised Ordinances of Honolulu as amended, and with the procedures set forth in the Administrative Rules of the DPP.

Revisions to the PIM are requested to identify major planned facilities projects needed to support the desired land use. A request for revision of the PIM may be submitted for consideration through the filing of a completed application with the

DPP. Each application for revision of the PIM is reviewed from the perspective of its contribution to the well-being of the people of Oahu and how it will support implementation of the applicable Development Plan and/or Sustainable Communities Plan. All phases of a project are considered when determining whether the project meets the PIM applicability criteria.

Comment:

The proposed WWTP improvement project is consistent in supporting the revised *Central Oahu Sustainable Communities Plan* and land use designations. Furthermore, the proposed project supports the revised plan's policies pertaining to the region's wastewater treatment system.

The proposed WWTP improvements would occur entirely at the site of the existing Wahiawa WWTP, and use of the site for public facility and wastewater utility purposes will continue. As noted above, the Wahiawa WWTP is shown and recognized as an existing public facility on the revised *Central Oahu Sustainable Communities Plan's* "Urban Land Use map" and Public Facilities Map".

The City is taking an active role in proposing the subject improvement project at the Wahiawa WWTP. Planning and coordinating the potential improvements to the entire plant has involved determining how best to implement IPS upgrades and flow equalization without interfering with future improvements at the WWTP. Completion of the proposed project will result in restoration of the existing Wahiawa WWTP's hydraulic capacity, improvement of the plant's reliability in treating wastewater, and production of R-1 quality recycled water. Through the proposed WWTP improvements, the City is seeking to reliably produce R-1 quality recycled water to facilitate the BWS in the potential distribution of water for R-1 applications.

In March 2007, a request for revision of the Central Oahu PIM was submitted to DPP for this WWTP improvement project. The project is reflected on the Central Oahu PIM as symbol Number 40 (Wahiawa WWTP Modifications).

#### **4.5. City and County of Honolulu Land Use Ordinance**

The City and County of Honolulu Land Use Ordinance regulates land use in accordance with adopted land use policies, including the City and County of Honolulu General Plan and the Development/Sustainable Community Plans. The project site is designated as within the I-2 Intensive Industrial zoning district.

Comment:

The existing WWTP facility is allowed per this zoning designation. Therefore, the proposed WWTP improvement project is consistent with the City's zoning designation of I-2 Intensive Industrial.

**4.6. State Coastal Zone Management Program**

Hawaii's Coastal Zone Management (CZM) program, established pursuant to Chapter 205A, HRS, as amended, is administered by the State of Hawaii, Office of Planning and provides for the beneficial use, protection, and development of the State's coastal zone. Any significant development activity within the coastal zone is required by law to conform to Hawaii's CZM program objectives and policies. The objectives and policies of the Hawaii CZM program encompass broad concerns such as impacts on recreational resources, historic and archaeological resources, coastal scenic resources and open space, coastal ecosystems, coastal hazards, and the management of development.

Through the CZM program and pursuant to the Hawaii Coastal Zone Management Act (Chapter 205A, HRS, as amended), all counties have enacted ordinances establishing Special Management Areas (SMAs). Development within the SMA, including most development proposed by the State, requires a SMA permit from the appropriate county. On Oahu, the SMA permit is administered by the DPP and acted upon by the City Council pursuant to Chapter 25, Revised Ordinances of Honolulu.

Comment:

The proposed WWTP improvement project is not located within the coastal zone with the SMA boundary located more than 5 miles to both the north and south relative to the project site. Therefore, the project site is located outside the boundaries of the City's SMA and approval of a SMA permit is not required.

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## **5. ALTERNATIVES TO THE PROPOSED ACTION**

### **5.1. No-Action Alternative**

Under the No-Action Alternative, the existing Wahiawa WWTP would remain in its existing state. The performance of the overall treatment processes at the Wahiawa WWTP would not be enhanced. The WWTP's assorted problems and deficiencies that were identified in support of the proposed project as part of the Alternatives Analysis Report (see Section 2.2.4 for details) would remain unresolved. The existing and future deficiencies (as projected through 2020) would continue to exist, and further degradation would be likely. Sewer treatment service for the Wahiawa wastewater service area could be compromised.

No construction related impacts to the environment or to existing and surrounding uses would occur. There would be no commitment of funding or capital improvement costs. However, without restoration of the WWTP's hydraulic capacity and improvement of the WWTP's reliability in treating wastewater, the potential for SSOs at the Wahiawa WWTP and throughout the Wahiawa wastewater collection system would not be reduced. This alternative would expose those residents and tenants served by the Wahiawa wastewater system, as well as features of the natural environment, to potentially hazardous untreated sewage as a result of SSOs. Additionally, under this No-Action Alternative the effluent quality would not be enhanced and the City could not reliably produce R-1 quality recycled water for potential reuse. In the long term, the benefits of the proposed WWTP improvement project would not be realized.

### **5.2. Alternatives Analysis Report Alternatives**

The Limtiaco Consulting Group is preparing the Alternatives Analysis Report to evaluate improvement options for addressing identified problems at the Wahiawa WWTP without interfering with future improvements. The report presents numerous process-specific alternatives that could be used to address the identified problems at the plant. Ultimately, the process-specific alternatives were combined into cohesive project alternatives. The cohesive project alternatives were evaluated to determine the best alternative. The Alternatives Analysis Report identifies, evaluates, and examines design scenarios with preliminary layouts and the pros and cons of each cohesive project alternative, including estimated construction costs.

#### **5.2.1. Process-Specific Alternatives**

The Alternative Analysis Report presents numerous process-specific alternatives that cover both front-end and back-end improvements that could be used to address the identified problems at the plant. The following sections

provide descriptions of the various process-specific alternatives considered, including the work involved and some advantages and disadvantages of each as would specifically pertain to the Wahiawa WWTP and project site.

### **5.2.1.1. Headworks**

#### **5.2.1.1.1. Relocate Existing Comminutors**

No problems have been reported with the existing comminutors and they appear to be in relatively good condition. Correspondence during the development of the Alternatives Analysis Report indicated that the front face of the comminutor was not flush with the influent channel. This would result in having standing water in the influent channel and could contribute to the accumulation of grit and solids. Discussions with the manufacturer indicate that the comminutor should be installed nearly flush to the floor. There would still be a small lip on the upstream side of the comminutor, but this is to ensure that the downstream side is flush with the floor. No additional changes would be proposed under this process-specific alternative.

#### **5.2.1.1.2. Implement Screening**

The existing comminutors are not consistent with current trends in the wastewater industry which strive to remove materials from the influent flow to save on maintenance of downstream equipment. Comminutors are also not compatible with MBRs, as discussed later.

Implementation of bar screens would be the first step of pre-treatment for MBRs, and it would reduce clogging potential in the downstream influent pumps and piping. However, this technology will result in the need for plant personnel to deal with the removal, dewatering, storage, and disposal of screenings. Screenings tend to be odorous and the screening facility would have to be enclosed in order to avoid nuisance odor emissions. The building handling the screenings would require odor control.

#### **5.2.1.1.3. Flow Monitoring and Sampling**

With respect to managing flow equalization facilities, influent monitoring is invaluable. Flow monitoring will signal the operators or more likely the programmable logic controller when it is reasonable to pump flow back to the influent structure. Although not typically required for regulatory reporting purposes, influent flow monitoring would allow for compositing of a much more representative influent sample, since the influent sampler is currently paced by the effluent flow meter.

Influent flow monitoring and sampling will generally be located in the same location to comply with regulatory requirements.

**In-Pipe Ultrasonic Flow Meter.** The Wahiawa WWTP currently has an ultrasonic type metering device near the manhole upstream of the influent channel. Discussions with ENV staff indicate that the flow meter is accurate and the results from this meter form the basis for developing pump capacity and storage requirements.

Locating the flow meter in this area would require relocating the existing sampler. The plant staff has indicated that if the sampler were relocated to this location that drains and washdown water be provided as well.

**Flumes.** There are two general flumes used in flow metering – Palmer-Bowlus and Parshall flumes. Both are similar in that they are typically available as fiberglass or plastic inserts. The Palmer-Bowlus flume has a semi-circular cross section and is adapted for connecting to a circular pipe, whereas the Parshall flume has a rectangular cross section which is better suited to connecting to channels. Palmer-Bowlus flumes tend to have a shorter laying length than Parshall flumes. For example, a six-inch throat Palmer-Bowlus flume has a laying length of 26.25 inches whereas a six-inch Parshall flume has a laying length of 60 inches.

The two flumes also have different metering capacity ranges based on throat diameter.

**Venturi Meter.** Venturi meters measure the pressure drop across a converging conic section and relate that to a velocity and then subsequently to a flow. Venturi meters are typically used in pumped flow applications and typically on cleaner water applications because the throat of the meter can get plugged. While this is theoretically an option, it is not a practical one from a maintenance standpoint at the headworks of the plant.

**Magnetic Flow Meter.** A magnetic flow meter, technically an electromagnetic flow meter, is commonly referred to as “mag meter.” The device operates by applying a magnetic field to a metering tube, which results in measuring the potential difference proportional to the flow velocity perpendicular to the flux lines. This volumetric measuring device is based on Faraday’s Law, which states that the voltage induced across any conductor as it moves at right angles through a

magnetic field is proportional to the velocity of that conductor. Magnetic meters do not have moving parts and are ideal for wastewater applications or any dirty liquid which is conductive or water based.

**Influent Flow Sampling.** Plant staff has requested that if a new sampling location is instituted that provisions for washdown water and drainage be included. A hose bibb and drain will be provided to address these concerns.

#### **5.2.1.1.4. Grit Removal**

If MBRs are used, then grit removal will be necessary. Three options for grit removal include the following.

**Aerated Grit Chamber.** Aerated grit removal consists of a long channel and an aeration system that imparts a spiral flow pattern on the wastewater. Grit which has a faster settling velocity settles out while lighter organic matter is kept in suspension and conveyed to downstream processes. Settled grit is removed by a grit pump (centrifugal) or an airlift pump. The grit is then washed, classified, and dewatered prior to being hauled offsite.

Aerated grit chambers use air introduced along the sides of the tank to produce a spiral roll flow pattern through the tank. The spiral flow pattern maintains the lighter material in suspension while the heavier solids settle to the bottom hopper or grit trough. The collected grit is removed from the grit trough using chain and bucket collectors, screw augers, or air lift pumps. The primary advantage of this type of grit removal is that similar grit removal efficiency can be achieved over a wide range of flows. The primary disadvantage is that power consumption is higher than other grit removal processes.

**Forced Vortex Grit Removal.** Forced vortex grit removal systems use a rotating paddlewheel to produce a vortex to capture grit solids in the center hopper of a circular tank. This type of grit removal is effective over a wide range of flows with minimal head loss. However, the grit may become compacted in the holding sump and may require high-pressure agitation water or air for cleaning.

Like the aerated grit chamber, a grit washer, classifier, and dewatering system are required.

**Free Vortex Grit Removal.** Free flowing vortex units generate a vortex with a tangentially entering flow and rely on a minimum hydraulic head

(typically 2 to 5 feet) to provide the motive force to remove fine grit. This grit removal method does not require a motor drive. However, the primary disadvantage associated with this type of grit removal is that the unit operates most efficiently at the peak design flow and their removal efficiency is somewhat reduced at lower flows.

Like the aerated grit chamber, a grit washer, classifier, and dewatering system are required.

#### **5.2.1.1.5. Fine Screens**

Fine screens are a necessity if MBRs are implemented (as presented in Section 5.2.1.5.2). Removal of smaller particles is necessary to safeguard the membranes in the MBR process which represent the bulk of the capital investment in an MBR system. The nominal opening in the fine screens varies from manufacturer to manufacturer, but for the purpose of the Alternative Analysis Report, it was assumed that 2 millimeter openings are sufficient. Implementation of this process-specific alternative would require coordination of this issue between the MBR and headworks projects so that there are no warranty issues with the MBR manufacturer.

It is recommended that a rotary drum screen style system be used. This type of system appears to be gaining acceptance among MBR manufacturers in comparison to wedge wire screens. In this style of screen, flow is directed into the center of the continuously rotating screen and flows outward. Solids that are separated from the wastewater are lifted internally within the machine, washed and brushed from the screen, and finally washed and consolidated by a solids processing unit. Solids from the screening unit will need to be periodically hauled and disposed of at an appropriate off-site disposal area. An additional screen unit would be installed to provide full redundancy for screening the incoming flow.

#### **5.2.1.2. Influent Pump Station**

##### **5.2.1.2.1. Design Considerations**

**Flow Rate.** The existing average dry weather design flow rate of 2.5 mgd still appears to be appropriate given the lack of development within the Wahiawa wastewater service area. Taking into account the DAF flow, an additional 1.0 mgd of pumping capacity is also required. The DAF flow could be reduced in the future if an alternative thickening process was selected.

Conservatively, three 3.25 mgd variable frequency driven pumps would form the basis for the new pump station. Two duty pumps with one standby pump would be adequate to address peak flow conditions, with the difference made up by the flow equalization facilities.

**Wet Well.** The existing wet well is currently sized at approximately 5,000 gallons or slightly less than 3 minutes at ADWF. Taking into consideration the DAF overflow, it is even less than that. Increasing the wet well size in addition to providing adequate flow equalization capacity should provide the right balance between cost and function.

Provision of a 15-minute wet well will provide the operators some flexibility should problems be encountered with the pumps or VFDs. A wet well of this volume would have a foot print on the order of 22 feet x 22 feet and would provide about a five minute storage time on the smaller portion of a partitioned wet well.

The City standards generally call for pump stations to be a dry-pit configuration. Dry-pit pump station configurations provide easier access to the pumps, but also require the pump station to be larger which can be costly. The size of the pump station can be minimized if a submersible configuration is adopted. Immersing the pumps directly in the wet well will eliminate the dry-pit component of the pump station. A jib crane or monorail is needed to facilitate the removal of the pumps for servicing, but similar facilities would also be needed to extract the pumps from a dry-pit configuration.

Maintenance concerns over submersible pumps can be reduced by implementing reasonable pre-treatment, including screening and grit removal.

#### **5.2.1.2.2. Replace Existing Pumps and Flo-Matcher System**

This option would represent the least costly IPS process-specific alternative because the existing structure and piping would be retained. Replacing the existing pumps and the Flo-Matcher system would provide the City with a new matched system that is more in line with the current design thought process.

#### **5.2.1.2.3. Create New Pump Station**

Developing a new pump station would be in line with providing the other headworks facilities needed for the MBR alternative since there is not sufficient room to incorporate coarse screening, grit removal, and

fine screening in the existing influent channel. A new pump station would also allow significant flexibility during construction for the contractor in terms of finalizing the tie-in with the existing plant facilities.

### 5.2.1.3. Flow Equalization

Flow equalization is the practice of using storage to dampen flow variations. Historically, flow equalization has been used to reduce the total capital cost of wastewater treatment facilities by reducing the required peak capacity of the treatment facilities primarily through partial storage of peak wet weather flows. However, flow equalization can also be used to dampen peak dry weather flow rates to take advantage of cost differentials in peak and off-peak power costs. Insofar as one of the primary drivers of the project is the reduction of spills which occur primarily during peak wet weather flow events and that plant staff has not expressed a need for dry weather peak shaving, it was determined that flow equalization for this project will focus on addressing peak wet weather flows only.

The plant staff has been able to minimize the potential for spills by taking advantage of the abandoned facilities at the existing WWTP, but it appears as though additional storage capacity is required. The combined storage volume in the two abandoned secondary clarifiers and the chlorine contact tank is approximately 434,000 gallons, which exceeds the 368,000 gallon number cited in the *Sewer Rehabilitation and Infiltration & Inflow Minimization Study* (Fukunaga and Associates, 1999). However, that number was based on a peak design flow rate of 10.16 mgd under 1995 conditions and 10.06 mgd under 2020 conditions. The recent data (August 2005 through March 2007) shows a sustained peak hour flow rate of 12.04 mgd and an instantaneous (single point reading) of 13.23 mgd. These values coincide with the peak day flow rate of 3.77 mgd.

In calculating the storage requirement, it is the area under the curve bounded by the upper limit of the treatment capacity or 6.5 mgd. The storage requirement equates to 440,000 gallons, which just slightly exceeds the volume provided by the existing abandoned facilities. Anecdotal information suggests that this is insufficient – that the plant has experienced spills with a similar storage volume available to it. Recognizing that the diurnal curve for the calculation was derived from less than two years of actual data, it is not unreasonable to apply a safety factor to account for a longer duration storm event that has a wider peak than was observed over the past two years. Incorporating a 25% safety factor yields a flow equalization storage requirement of 550,000 gallons.

#### **5.2.1.3.1. Use of Existing Structures**

There are currently three existing facilities that the plant uses for flow equalization as it stands – two abandoned secondary clarifiers and the chlorine contact tank. The combined volume of these facilities is approximately 434,000 gallons. According to plant personnel, the combined existing tank volume is not enough to satisfy severe wet-weather flow. Additional storage is desired to afford plant staff more flexibility and reaction time during periods of high flow. Additional storage could be achieved by building a new facility or if other facilities are abandoned in the future. If MBR is implemented, the primary clarifier and secondary clarifiers can be abandoned and could be converted into flow equalization facilities.

Such facilities could include the following:

- Primary clarifier 152,000 gallons
- Two secondary clarifiers 296,000 gallons each

#### **5.2.1.3.2. Develop Entirely New Structure**

A totally new structure could be created for the express purpose of providing the required flow equalization volume. The facility could be located in an area that works best hydraulically for the plant and would help centralize the cleanup effort following a high flow event. However, this would be a very costly alternative and space is very limited, which would prohibit opportunities for future plant improvements. Depending on the hydraulics, it is estimated that a new flow equalization facility would be roughly 40 feet long x 40 feet wide x 12 feet deep (including a freeboard allowance).

#### **5.2.1.4. Primary Clarification**

##### **5.2.1.4.1. Provide Redundant Clarification and Rehabilitate Existing Clarifier**

The City's Design Standards are clear on the requirements for primary clarification and the existing clarifier does not provide the requisite overflow rate. Inclusion of an identically dimensioned primary clarifier will reduce the overflow rate at peak flows to acceptable levels. Inclusion of a second primary clarifier will necessitate the inclusion of a splitter box to provide for equal loading to each primary clarifier. Similar to the space limitation problems associated with a new equalization facility (as presented above in Section 5.2.1.3.2), constructing a redundant primary clarifier will be extremely difficult.

#### **5.2.1.4.2. Eliminate Primary Clarifier**

An alternative to providing a second primary clarifier is to incorporate a treatment method that does not require primary clarification, such as MBR. This would not only eliminate the need for a redundant primary clarifier, but would also free up the primary clarifier for additional flow equalization storage or possibly as sludge storage as recommended by the plant staff.

#### **5.2.1.5. Secondary Treatment**

##### **5.2.1.5.1. Existing Aeration Basins**

The existing aeration basins appear to operate adequately as indicated by the effluent biochemical oxygen demand data. With respect to future TMDL requirements, it is possible to achieve nutrient reduction by implementation of anoxic zones upstream of the aeration basins and adding recycle pumps to return a portion of the flow to the anoxic zone. Chemical addition would likely be necessary if nitrogen and phosphorous levels specified by the DOH as part of the TMDL process are extraordinarily low and there are no guarantees that these levels can be reached.

##### **5.2.1.5.2. Membrane Bioreactor**

MBRs are a spin on the activated sludge process. MBRs run at a much higher mixed liquor concentration than conventional activated sludge (8,000 to 10,000 milligrams per liter [mg/L] versus 1,500 to 2,000 mg/L). This tends to reduce the tankage requirements for treatment, but there are other facilities required, such as chemical cleaning systems and permeate pumps that are not typically required in standard activated sludge processes.

The primary benefit of an MBR system is that it renders other facilities, namely primary and secondary clarification and tertiary filtration, unnecessary. MBR also reduces UV disinfection requirements. Furthermore, the existing activated sludge process is currently compartmentalized into four basins and will facilitate adequate system redundancy.

The existing aeration basins have a sidewater depth of 11.1 feet. According to several manufacturers this depth is very marginal for use as a MBR. Structural work to increase the height of the existing basins is anticipated.

The following are preliminary recommendations for the MBR design. Detailed process calculations will be necessary to confirm the exact MBR design characteristics based on the manufacturer and additional influent sampling for nitrogen and phosphorus.

- ADWF 2.5 mgd
- ADWF + DAF Recycle 3.5 mgd
- Peak flow 6.5 mgd
- Number of aeration tanks 4 (3 duty, 1 operating standby)
- Tank dimensions, each 85 feet long x 15 feet wide x 17 feet sidewater depth
- Total tank volume 650,000 gallons

#### **5.2.1.5.3. Alternative Secondary Treatment**

There are numerous other alternatives to MBR that could be used in place of activated sludge. However, there is no incentive to go to other treatment methods based on the current performance of the existing aeration basins. No secondary treatment methods other than MBR were considered.

#### **5.2.1.6. Secondary Clarification**

The existing secondary clarifiers are relatively new, and they meet the City's Design Standards. Therefore, there are no improvements intended for the secondary clarifiers, with the possible exception of abandonment should MBRs be selected as the means of secondary/tertiary treatment. In this case, the two secondary clarifiers could provide an additional 591,000 gallons of storage.

#### **5.2.1.7. Tertiary Filtration**

##### **5.2.1.7.1. Retrofit Existing Dynasand Filter**

In order to make the existing Dynasand filter compliant with the DOH's 2002 water reuse guidelines, it will be necessary to re-implement the coagulation process. It is recommended that the polymer static mixer be relocated further away from the sand filters (closer to the secondary effluent pump station) to provide additional time for the polymer to develop prior to entry into the filters. If this is not successful, then it would be necessary to construct a tank and mixer system with a detention time of 2 to 5 minutes.

#### **5.2.1.7.2. Eliminate Tertiary Filtration**

Rather than retrofit the existing facilities, MBR could simply result in the elimination of these facilities. This would eliminate the backwash flow to the IPS and the power cost associated with the operation of this process.

It has been suggested by ENV staff that if MBR were implemented, that the Dynasand filter be retained and used as post-MBR treatment. A potential benefit would be the higher turbidity permits limits on the discharged flow. Granular media filtration turbidity limits are 2 nephelometric turbidity units (NTU), whereas membrane filtration turbidity limits are 0.2 NTU 95% of the time, with a not to exceed limit of 0.5 NTU.

It is unlikely that the DOH would relax its restrictions on effluent turbidity because the last solids removal process was of a lower efficiency than a previous process. It would also be more power- and labor-intensive for the facility to operate in this mode. MBR has demonstrated its ability to produce a very high quality effluent that is significantly lower than the 0.2 NTU limit. With conservative design criteria, including adequate redundancy to meet peak flow rates with one MBR module out of service, the MBR system should reliably meet the prescribed turbidity standard. The Dynasand filter is also susceptible to plugging, particularly with the debris from nearby trees. Serial operation of the MBR and Dynasand filters was eliminated from further consideration in the Alternatives Analysis Report.

#### **5.2.1.8. Disinfection**

##### **5.2.1.8.1. Low Pressure, High Output Lamps**

As an alternative to the existing medium pressure, high output lamps, it is possible to replace the existing system with low pressure, high output lamps. This style of UV disinfection would require significantly more space to achieve the same level of disinfection that the medium pressure lamps would require, but would save on operating costs. There are better means of addressing this issue given that the significant investment has already been made in the medium pressure lamps.

##### **5.2.1.8.2. Uninterruptible Power Supply**

Provision of an uninterruptible power supply is mentioned in the National Water Resource Institute publication *Ultraviolet Disinfection*,

*Guidelines for Drinking Water and Water Reuse* as a means of addressing electrical service reliability. Discussions with the manufacturer indicate that in practice this measure is not used, and this appears to be confirmed with several designers of UV systems on the mainland, with cost being cited as the major factor. The manufacturer's representative for the UV system has recommended off-specification water storage as a better alternative.

#### **5.2.1.8.3. Off-Specification Water Storage**

DOH has indicated that about 6.2 million gallons of storage be provided as fail-safe storage (when effluent quality levels are not met, hence "off-specification water"), based on the two highest consecutive days of effluent flow at the Wahiawa WWTP. It is anticipated that this storage would be broken up into two storage tanks to facilitate maintenance of either tank. Welded steel tanks represent the most cost-effective alternative for storage here as concrete tanks are fairly expensive in comparison, and the tanks would be expected to be used very infrequently.

ENV staff has suggested that the storage be broken up into three tanks – two 3-million gallon tanks for fail-safe storage and one 0.2-million gallon tank – to be located in the northwest corner of the plant and to serve several purposes, including off-specification storage of treated wastewater and raw influent diurnal flow equalization. A review of the flow monitoring data reveals minimal need for diurnal flow equalization – less than 13,000 gallons on an average day. This level of flow variation can be absorbed whether the existing treatment system is preserved or if MBR is implemented. From a hydraulic and cost perspective, splitting the off-specification storage into three components is not efficient and this sub-alternative was not pursued further in the Alternatives Analysis Report.

Two pump stations—one to pump off-specification water to the storage tanks and one to pump R-1 water to the BWS pump station—are likely required. A metering facility to return flows from off-specification water storage to the headworks of the plant is also required.

#### **5.2.1.9. Solids Handling**

##### **5.2.1.9.1. Thickening System Modifications**

The existing sludge thickening system was originally a gravity thickener that was converted to a DAF process. The system has had to be manipulated by the plant staff in order to work properly, and the

process hydraulics resulted in the abandonment of the sludge holding tank. Gravity thickening is the preferred method for handling primary sludge and DAF thickening has been used most successfully in handling WAS. The results for combined sludge fall somewhere in between with typical thickened sludge in the 2 to 5% range.

The primary drawback in the existing set up is the large volume of DAF overflow back to the IPS wet well. If an alternative thickening system were chosen, the large amount of flow could be significantly reduced with a corresponding savings in pumping and treatment costs.

#### **5.2.1.9.2. Centrifuge Thickening**

Centrifuges can be used for both thickening and dewatering applications. Thickening by centrifugation involves the settling of sludge particles under the influence of centrifugal forces. Centrifugal thickening is a high speed process that uses the force from rapid rotation of a cylindrical bowl to separate wastewater solids from liquid. A solid-bowl centrifuge operates as a continuous feed unit which removes solids using a scroll conveyor and discharges liquid over an end weir. The bowl is a conical-shape which helps lift solids out of the liquid allowing them to dry on an inclined surface before being discharged. Because the process is enclosed, it is less odorous than other thickening alternatives.

#### **5.2.1.9.3. Gravity Belt Thickener**

GBTs are based on the gravity section of the belt filter press, where the majority of dewatering occurs. A GBT is used primarily to thicken WAS and digested sludge. This process utilizes gravity to drain water from the sludge as it travels over a filter belt that is under tension. The water is collected beneath the belt as the concentrated sludge is carried to the discharge end. A polymer chemical is typically added to the dilute sludge to enhance the thickening process. This process is a popular thickening method because of its simplicity, low power usage, and moderate capital costs.

#### **5.2.1.9.4. Membrane Thickeners**

Membrane thickening is a new thickening process based on MBR technology. In membrane thickening, a membrane is used to withdraw permeate from sludge, thereby thickening it. Membrane thickeners operate with a higher solids reactor concentration, but at a much lower flux rate (about one-third) than a conventional MBR for wastewater.

The lower flux rate prevents the higher solids concentration from quickly fouling the membranes. The membrane is extremely efficient in retaining solids within the reactor, resulting in nearly 100% solids capture.

Permeate can be returned to the secondary treatment process, and thickened sludge can be pumped to treatment or trucked off-site. The reactor tank is continuously aerated, providing scouring air to keep the membranes clean and to provide some additional sludge stabilization. The process operates continuously and does not require the addition of polymer. A membrane thickener achieves a consistent thickened sludge solids concentration, regardless of sludge characteristics. Although it may be possible to achieve thickened solids concentrations of up to 5%, a limit of 3% is more practical to prevent frequent fouling of the membranes and promote recovery of flow through the membrane.

#### **5.2.1.9.5. On-Site Sludge Stabilization and Dewatering**

At the present time, thickened sludge is trucked to the Honouliuli WWTP for heat treatment and disposal. Approximately two to four truckloads of thickened sludge are sent to the Honouliuli WWTP on a daily basis. Rather than continue this process, it is possible to construct and operate sludge stabilization and dewatering facilities at the Wahiawa WWTP.

Qualitatively, on-site sludge stabilization and dewatering may be difficult to justify. With all of the improvements being considered, space on site is at a premium. Inclusion of these processes will require an enclosed building equipped with odor control facilities.

Determining whether to treat and dewater sludge on-site will require a separate investigation, which goes above and beyond the scope of the Alternatives Analysis Report. In addition, information regarding the incremental costs at the Honouliuli WWTP for trucking, treatment, and disposal of the sludge will be required to provide a quantitative basis for the decision.

#### **5.2.1.10. Odor Control**

##### **5.2.1.10.1. Carbon Adsorption**

Activated carbon has a very high surface area to volume ratio, and extensive surface area for adsorption of odors. Because of the high surface area to volume ratio, activated carbon scrubbers can be

relatively small in comparison to other materials. However, the spent carbon is typically considered to be a hazardous waste that requires special, and expensive, disposal.

A second problem with activated carbon is that low molecular weight compounds, such as hydrogen sulfide, are only loosely held to the media. These molecules can be readily bumped-off of the activated carbon by high molecular weight compounds. As a result, an activated carbon scrubber can have a relatively short media life.

To increase the removal rate of hydrogen sulfide, activated carbon can be impregnated with sodium hydroxide (NaOH) or potassium hydroxide. However, the impregnating chemical greatly reduces the surface area of the carbon, and thus, its capacity for removal of other compounds.

#### **5.2.1.10.2. Liquid Scrubbers**

A packed bed liquid scrubber can be used to absorb malodorous compounds from the air stream into a recycled liquid flow within the scrubber. The malodorous compounds are then removed from the scrubber by a continual blow down of the recycled liquid. Chemicals, such as NaOH or sodium hypochlorite, are usually used to raise the pH of the recycled liquid to improve the efficiency of the scrubber. When ammonia or amines are encountered, an acidic chemical such as sulfuric acid is necessary for good absorption. Sometimes two or three packed bed liquid scrubbers using different chemicals are used in sequence to remove the various odorous compounds.

The major advantages of a packed bed liquid scrubber are that it can handle large volumes of malodorous air, and it can be very economical when the gas stream has a high odor concentration. The major drawbacks are that it is not as efficient at removing odors at low odor concentrations as the adsorption process, and there is a continual power and chemical requirement to operate the scrubber. Also, the chemicals used to raise the pH in the scrubber can be odorous unto themselves.

There is an existing odor control system hooked up to the sludge holding tank, but it is not currently active. This unit could be incorporated into the final design, although it is believed that additional capacity would be required.

### **5.2.1.10.3. Biofilters**

Biofilters use a combination of absorption and adsorption mechanisms to capture odorous compounds from the air stream and then biological degradation by microorganisms living in the media to oxidize them. Because the media in a biofilter does not have as high of a surface area to volume ratio as activated carbon, the biofilter requires a much larger area. A biofilter will normally require 10 to 50 times more area than an activated carbon scrubber. However, the major advantage of using a biofilter is that it is usually much less expensive to operate, and the media has a much longer life.

## **5.2.2. Cohesive Project Alternatives**

In the Alternatives Analysis Report, the process-specific alternatives described above were ultimately combined into cohesive project alternatives. It was recognized that there were countless combinations of process-specific alternatives that could be formulated; therefore, rather than consider the multitude of possibilities, cohesive project alternatives were created that provide a range of solutions at the Wahiawa WWTP for varying costs.

In addition to the proposed action (described in detail in Section 2.3, Description of Project), two cohesive project alternatives were formulated and evaluated. The following sections provide descriptions of these two cohesive project alternatives evaluated, but not selected for this project.

### **5.2.2.1. Cohesive Project Alternative 1 – Pump Station Upgrades Only**

This alternative includes the replacement of the pumps and the implementation of the flow equalization and, in essence, only provides for front-end improvements. This is the bare bones minimum project to satisfy only IPS upgrades and flow equalization facility requirements. It does not address issues related to the wet well size nor does it address any of the existing treatment issues that the plant staff has identified.

This alternative allows some of the water quality issues, specifically the TMDLs, to be sorted out before developing an approach with regard to treatment. This would also reduce the potential for having to redo work in the future if major treatment improvements are made and could delay the ability to produce R-1 quality recycled water.

Construction sequencing for this project appears fairly straightforward. Some difficulties may be encountered in the startup and testing phase as

individual pumps being operated by separate control systems (Flo-Matcher and VFDs) are swapped out while trying to keep the plant on-line.

Key elements to this alternative include:

- Three VFD-driven influent pumps rated at 3.6 mgd @ 15 feet TDH.
- Submersible pumps for the two abandoned FCs and the chlorine contact tank.
- Miscellaneous piping and valving to route overflow from the IPS wet well to the abandoned FC and chlorine contact tank.
- Retention of the existing in-pipe flow monitoring system and provision of a sampling station, including washdown facilities.

**Figure 9** shows the location of facilities impacted by this alternative, and the estimated construction cost for this alternative is \$1,048,000.

#### **5.2.2.2. Cohesive Project Alternative 2 – Upgrade Treatment Using Existing Processes**

If MBRs are not the ultimate treatment process for the Wahiawa WWTP, then it is not necessary to implement extensive pretreatment to safeguard the biological process. The front-end improvements could be as minimal as those described in Alternative 1 above, which includes the replacement of the influent pumps, implementation of the flow equalization, and incorporation of the influent sampling at the in-pipe flow meter (which would be retained).

However, to meet the R-1 quality criteria, it will be necessary to make some back-end improvements to the processes downstream of the IPS. These would include:

- Addition of a splitter box and a second primary clarifier to meet City Design Standards for overflow rates.
- Relocation of the coagulant feed point and static mixer on the secondary effluent line.
- Implementation of the off-specification water storage tank and off-specification and effluent pump stations.
- Implementation of gravity belt sludge thickening.

**Figure 10** shows the location of facilities impacted by this alternative. The estimated construction cost for the front-end improvements is \$1,048,000 and \$18,234,000 for the back-end improvements.

### 5.2.3. Evaluation of Cohesive Project Alternatives

As previously mentioned, the Alternatives Analysis Report evaluated potential improvements to the entire Wahiawa WWTP to determine how best to implement IPS upgrades and flow equalization without interfering with future improvements. In addition to the proposed action, each proposed cohesive project alternative for the improvement of the subject WWTP was evaluated against the following criteria:

- Water Quality/Regulatory Compliance: The primary driver for the back-end improvements is to develop a reliable supply of R-1 quality water. In addition, treatment above and beyond the minimum requirements will help reduce solids and organic loading to Wahiawa Reservoir, which could play a role in the development of load allocation for TMDLs.
- Cost/Cost Efficiency: ENV is facing a number of budgetary challenges relative to the upkeep of its facilities.
- Flow Equalization Volume/Flexibility: The *Sewer Rehabilitation and Infiltration & Inflow Minimization Study* (Fukunaga and Associates, 1999) calculated a minimum required flow equalization volume of 368,000 gallons. Based on recent monitoring data and comments provided by plant personnel, it appears additional flow equalization storage is required. Providing additional flow equalization volume will provide operators with some additional flexibility in operating the plant.
- Space Efficiency/Limitations: Because the existing project site is constrained both internally (limited space on site) and externally (residential lots adjacent to the plant), efficient use of space is a must.
- Construction Sequencing: Constructing improvements to operating facilities is always a challenge. Projects or project elements that ease the transition between existing and new or modified facilities are preferred.

A matrix, presented in **Table 1** below, was generated to allow comparison of the various cohesive project alternatives by assigning numerical values to the various criteria of each. Within the matrix, each criterion was rated with a number between 1 and 5, with “5” being the best and “1” being the worst for a given category. A total score is then derived for each alternative based on the individual ratings.

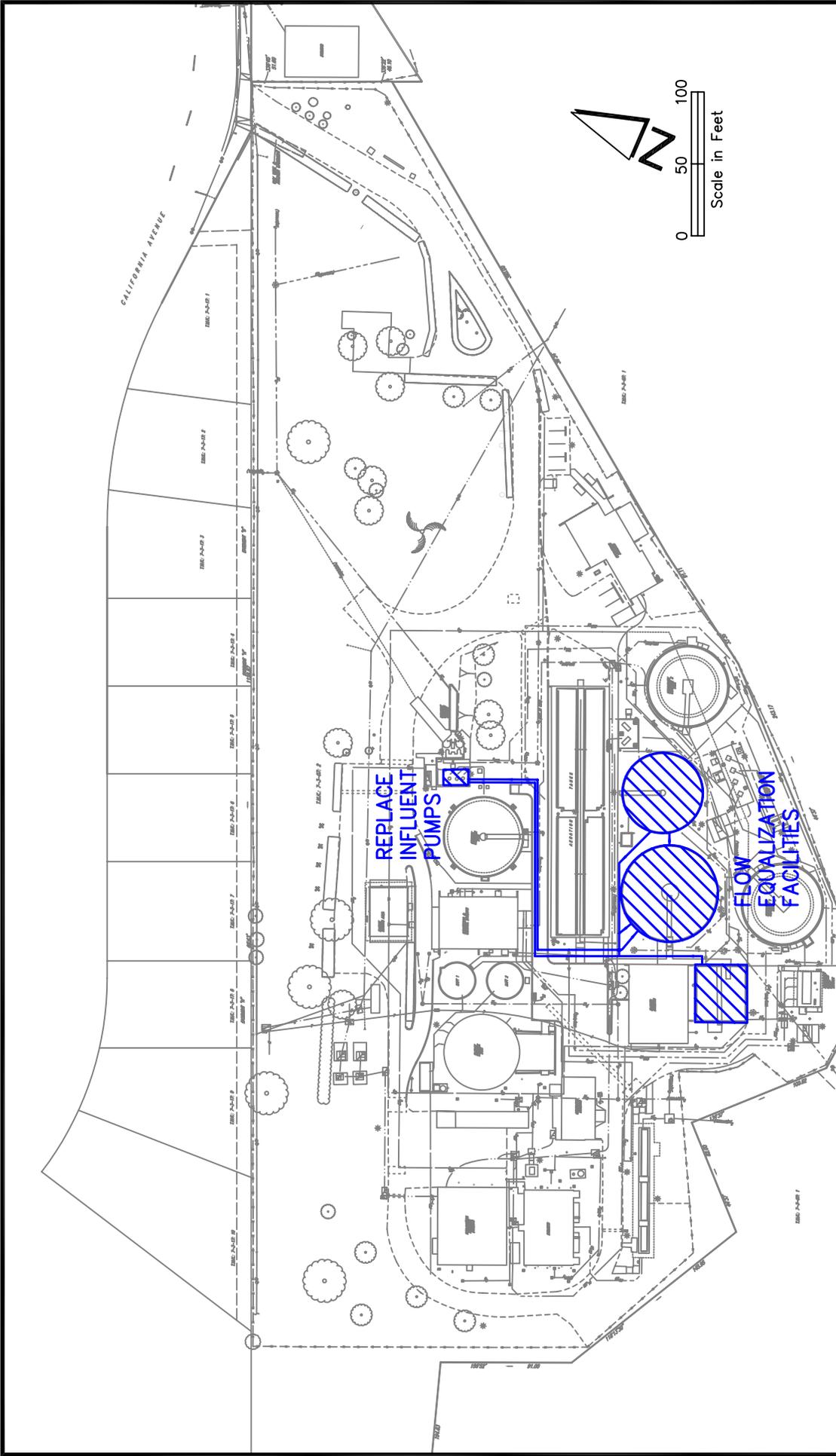
**Table 1 Comparison of Cohesive Project Alternatives**

Criteria	Cohesive Project Alternative 1	Cohesive Project Alternative 2	Proposed Action
Water Quality/Regulatory Compliance	1	3	5
Cost/Cost Efficiency	3	3	1
Flow Equalization Volume/Flexibility	2	2	5
Space Efficiency/Limitations	5	3	2
Construction Sequencing	2	2	3
<b>TOTAL</b>	<b>13</b>	<b>13</b>	<b>16</b>

Based on the analysis, the proposed action ranked the highest when evaluated against the preceding criteria. Hence, the Alternative Analysis Report concluded that the proposed action should be implemented in order to best accomplish the project need and objectives, and the two cohesive project alternatives were eliminated from further consideration. Although the proposed action is the most costly of all the alternatives, it provides significant long-term benefits:

- Highest water quality of the alternatives resulting in R-1 applications, the most liberal use of recycled water recognized by DOH.
- Largest volume of flow equalization resulting from the abandonment of numerous process tanks.
- Fairly space efficient with regard to the back-end improvements in that the existing aeration basins can be reused and several other facilities can be abandoned. The front-end improvements are not as space efficient, but there is space available to accommodate this work.
- High degree of flexibility in construction sequencing for the front-end improvements. Back-end improvements are less flexible and will require close coordination with plant staff to facilitate the switch over.

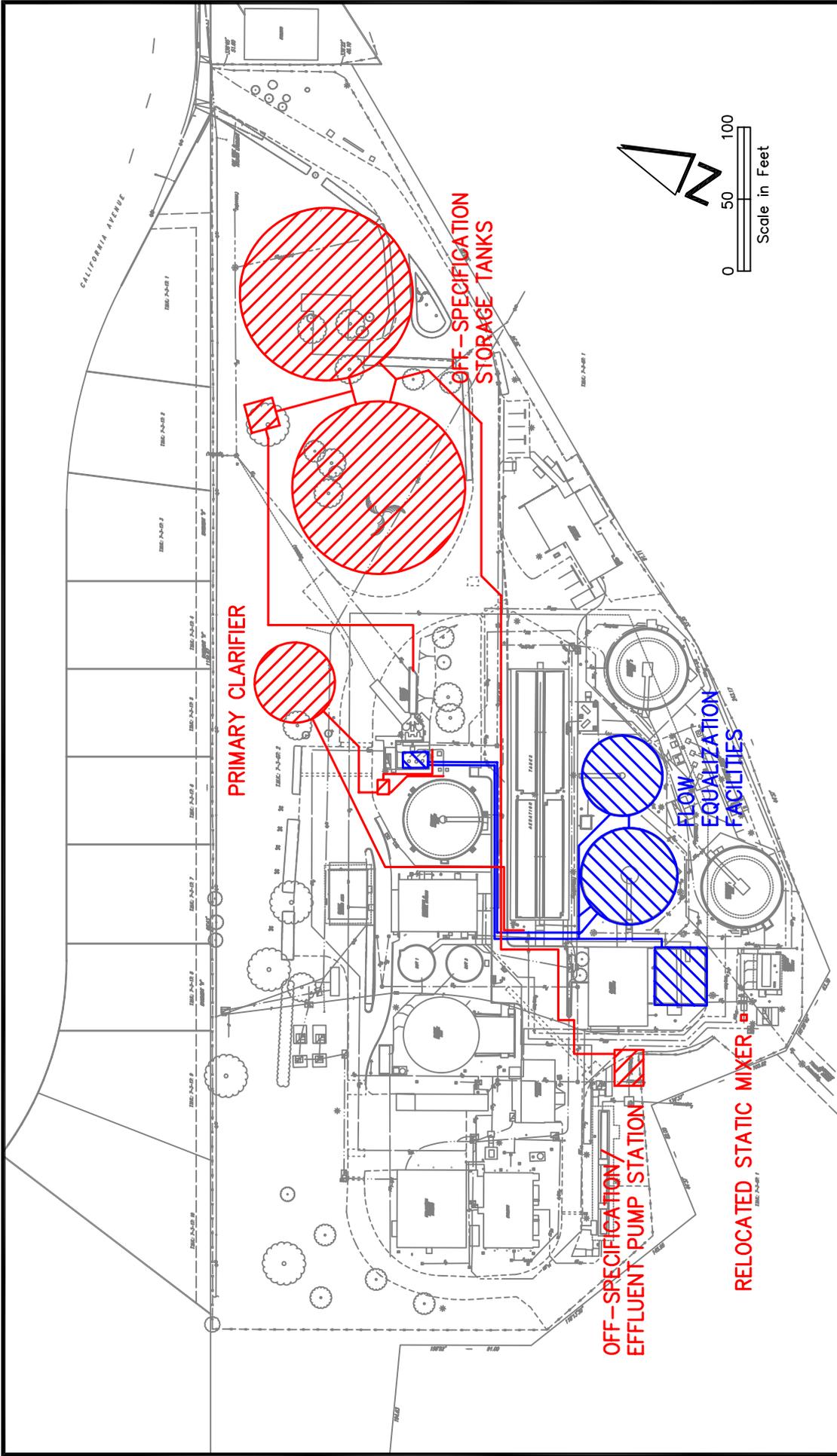
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 <p>THE LIMTIACO CONSULTING GROUP</p>	<p>FIGURE <b>9</b></p>
<p>COHESIVE PROJECT ALTERNATIVE 1 FACILITIES WAHIAWA WWTP MODIFICATIONS</p>	

- FRONT-END STRUCTURE 
- FRONT-END PIPELINE 

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**THE LIMTIACO CONSULTING GROUP**  
**COHESIVE PROJECT**  
**ALTERNATIVE 2**  
**FACILITIES**  
**WAHIAWA WWTP MODIFICATIONS**

**FIGURE**  
**10**

-  FRONT-END STRUCTURE
-  FRONT-END PIPELINE
-  BACK-END STRUCTURE
-  BACK-END PIPELINE

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## **6. REQUIRED PERMITS AND APPROVALS**

The following permits and approvals may be required for the proposed project:

### **6.1. State of Hawaii**

National Pollutant Discharge Elimination System General or Individual Permit (e.g., Discharges of construction dewatering effluent, storm water runoff associated with construction activity)

Community Noise Permit

Community Noise Variance

### **6.2. City and County of Honolulu**

Building Permit

Grubbing, Grading, and Stockpiling Permit

Erosion Control Plan/Best Management Practices

Street Usage Permit

Construction Dewatering Permit (Temporary)

Traffic Control Plans

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## 7. ANTICIPATED DETERMINATION

A Finding of No Significant Impact (FONSI) determination is anticipated for the proposed project. The proposed WWTP improvement project is not expected to have a significant impact based on the criteria set forth in the DOH Rules, Chapter 200, Title 11, Section 12. The proposed project's relationship to the criteria is discussed below.

- (1) *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;*

Completion of the proposed WWTP improvement project is not anticipated to involve an irrevocable commitment to loss or destruction of natural or cultural resources. As discussed in detail in the various sections of Chapter 3 of this EA, the proposed WWTP improvements would not negatively or significantly impact any natural or cultural resources.

The project site consists of and solely contains the Wahiawa WWTP. Hence, the proposed project would be constructed on an already disturbed and developed site, and the project site is located adjacent to and within a highly altered urban environment. There are no proposed, candidate, or listed threatened or endangered species or habitat for such species present within the project site. In addition, no archeological sites are present at or in the vicinity of the Wahiawa WWTP site, and no impacts to cultural resources or practices are anticipated as a result of construction or operation of the project. No other natural resources of significance are known to occur within the project site.

In fact, in the long-term, the proposed improvements to the Wahiawa WWTP are expected to contribute to increased environmental quality and have beneficial impacts. Such beneficial impacts include reduced potential for SSOs at the Wahiawa WWTP and throughout the Wahiawa wastewater collection system, and enhanced effluent quality. Furthermore, regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, production of R-1 quality water and enhancement of the effluent quality would potentially have beneficial impacts on any downstream, receiving water resources.

- (2) *Curtails the range of beneficial uses of the environment;*

The project would not curtail the range of beneficial uses of the surrounding environment. The present and historic use of the project site has primarily been the Wahiawa WWTP, and the primary present and historic uses of the immediately adjacent area have been residential and the Wahiawa Reservoir.

The completion of the proposed project would result in restoration of the existing Wahiawa WWTP's hydraulic capacity, improvement of the plant's reliability in treating wastewater, production of R-1 quality recycled water, and compliance with regulatory requirements.

The proposed project would provide improvements to the existing Wahiawa WWTP such that the plant can more reliably and adequately continue to serve the present land uses in the Wahiawa wastewater service area, which would have long-term favorable effects by reducing the potential for SSOs that would adversely affect the environment and public safety. In fact, through enhancement of the quality of the plant's effluent, the proposed project would in turn enhance and benefit the Wahiawa Reservoir and any downstream users. Therefore, the proposed project would contribute to increased environmental quality and the improvements planned would not change the existing uses of such lands.

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

The proposed project is consistent with the environmental policies, goals and guidance set forth in Chapter 344, HRS. This EA addresses the potential environmental impacts associated with the project, most of which would be short-term temporary impacts associated with construction activities. The proposed project would improve the existing Wahiawa WWTP with the design intent of minimizing impacts to surrounding resources. Design and construction considerations are included as components of the proposed project in order to minimize disruptions to existing residences, institutions, and traffic adjacent to the project site and within the Wahiawa wastewater service area.

- (4) *Substantially affects the economic welfare, social welfare, and cultural practices of the community or State;*

The project would not have any significant adverse impacts on the economic or social welfare of the Wahiawa community. The proposed project is anticipated to have short-term beneficial economic impacts due to the hiring of construction workers and the purchasing of materials. Short-term negative impacts or inconveniences (e.g., air quality impacts, increases in ambient noise levels, and traffic disruptions) may occur to residents and surrounding institutions during construction of the proposed project, and would be minimized through the application of appropriate mitigation measures and BMPs, as appropriate. In the long-term, the project would have positive economic and social welfare effects by maintaining reliable wastewater treatment associated with the Wahiawa wastewater service area.

As previously discussed in detail in the appropriate section of Chapter 3 of this EA, a previously-prepared cultural impact assessment indicates that culturally significant activities occur at three resources within the Wahiawa area. However, the results of the aforementioned assessment report indicate that culturally significant activities should not be affected by the project as individuals would continue to have access to such cultural resources and be allowed to participate in those activities. No impacts to cultural resources or practices are anticipated.

(5) *Substantially affects public health;*

Public health would not be adversely affected by the proposed project. Conversely, the proposed project would provide positive, long-term public health and safety benefits to residents, businesses, and institutions within the Wahiawa wastewater collection system by implementing measures that would significantly reduce the potential for SSOs at the Wahiawa WWTP and throughout the collection system

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

No substantial secondary impacts are anticipated given that the proposed project involves the restoration of the hydraulic capacity of the existing Wahiawa WWTP by successfully re-establishing the design capacity of the IPS and providing a large volume of flow equalization capacity due to space efficiency. The proposed project would provide improvements to the existing Wahiawa WWTP so that the plant can more reliably and adequately continue to serve the needs of and present land uses in the Wahiawa wastewater service area. Therefore, the project would not contribute to development and or growth within the existing service area. Additionally, the project also would not significantly impact any existing public facilities or infrastructure within or in the vicinity of the project site.

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

The proposed WWTP improvement project is not anticipated to involve a substantial degradation of environmental quality. As discussed in detail in the various sections of Chapter 3 of this EA, short-term impacts to air and water quality, ambient noise levels, and traffic operations may occur during construction of the proposed project. Environmental impacts that may be incurred as a result of construction activities would be mitigated for through the implementation of BMPs, as appropriate.

The proposed WWTP improvements would not negatively or significantly impact the quality of the existing environment in the long-term. Design measures and considerations are included as components of the proposed project in order to minimize potential impacts on environmental factors. In fact, the proposed project would provide improvements to the existing Wahiawa WWTP such that the project would have long-term favorable effects by reducing the potential for SSOs that would adversely affect the environment. Furthermore, through enhancement of the quality of the plant's effluent, the proposed project would in turn enhance and benefit any downstream water resources. The project would contribute to increased environmental quality once completed.

- (8) *Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;*

The project is planned to meet the existing and future needs, based on population projections, of the Wahiawa wastewater service area. The proposed project would provide improvements to the existing Wahiawa WWTP so that the plant can more reliably and adequately continue to serve the needs of and present land uses in the Wahiawa wastewater service area. Additionally, regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, the WWTP improvements are needed and intended to occur. Therefore, the project would have no foreseeable cumulative impacts and does not involve a commitment for larger actions.

- (9) *Substantially affects a rare, threatened, or endangered species, or its habitat;*

The project site consists of and solely contains the Wahiawa WWTP. Hence, the proposed project is located on a previously disturbed and developed site and is located adjacent to and within a highly altered urban environment. Lands altered and influenced by a high degree of urban development and human activity, such as the project site, are often characterized by floral and faunal communities dominated by introduced species. Consequently, species found within and adjacent to the project site are primarily non-native species. There are no known proposed, candidate, or listed threatened or endangered species or habitat for such species present within the project site.

- (10) *Detrimentially affects air or water quality or ambient noise levels;*

A detailed discussion of the project's potential affects on air quality, water quality, and ambient noise levels is provided in the applicable sections of this EA (Sections 3.8, 3.9, 3.10). As discussed those various sections, short-term impacts to air quality, water quality, and ambient noise levels may occur during

construction of the proposed project. Such environmental impacts will be mitigated through the use of proper construction techniques and compliance with applicable DOH rules and regulations. In the long-term, no significant adverse impacts related to these resources are anticipated due to the completion and operation of the proposed WWTP improvements. Design measures are included as components of the proposed project in order to minimize potential impacts.

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

The project site is not situated within an environmentally sensitive area. Although the Wahiawa WWTP site is located immediately adjacent to the Wahiawa Reservoir, the proposed project is not anticipated to negatively affect this freshwater resource. Appropriate erosion control measures and BMPs will be implemented to prevent pollutants from entering this surface water during construction. Additionally, regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, production of R-1 quality water and enhancement of the quality of the plant's effluent would have beneficial impacts on the Wahiawa Reservoir.

(12) *Substantially affects scenic vistas and view planes identified in county or state plans or studies; or*

The *Central Oahu Sustainable Communities Plan* (December 2002) identifies several visual landmarks and significant vistas, and the plan's vision seeks to retain those resources. The visual landmarks and significant vistas listed include the Waianae Mountains, Koolau Mountains, Pearl Harbor, the Waipahu Sugar Mill, Diamond Head, and the upper Central Oahu plains.

The existing Wahiawa WWTP is not identified as a visual landmark, nor are any visual landmarks located adjacent to or in the vicinity of the project site. The Wahiawa WWTP site is located somewhat within the orientation of the following identified view planes: views of the Waianae and Koolau Mountains from Kunia Road, Kamehameha Highway, and H-2 Freeway. However, the proposed WWTP improvements would not affect views of these scenic vistas. Minimum height constraints will be maintained for all newly constructed aboveground structures per DOH requirements and/or City ordinances. Additionally, given the orientation of the site in relation to the identified view planes and the current nature and use of the project site, any new structures associated with the proposed improvements would not likely be visible nor detract from these scenic vistas or view planes. Overall, the completed project would not adversely affect views of any identified visual landmarks, significant vistas, or view planes.

(13) *Requires substantial energy consumption.*

Completion of the proposed WWTP improvement project is not anticipated to substantially increase energy consumption at the Wahiawa WWTP as the proposed project represents a continuation of the current use of the project site. Many of the Wahiawa WWTP's existing process units and structures would operate differently under the proposed improvements, and several of the improvement structures will make use and involve conversion of existing structures at the Wahiawa WWTP. Such process units and structures may operate less frequently and intensely than under current operational conditions. Nonetheless, there may potentially be a slight increase in the demand for electricity in operating the WWTP based on the proposed improvements (e.g., additional pumps required to operate the system).

## 8. CONSULTATION

### 8.1. Pre-Assessment Consultation

The following agencies, organizations, and individuals were consulted during the preparation of the Draft EA. A total of 16 of these parties formally replied during the pre-assessment period, as indicated by the √ below. Comments and responses are reproduced herein (**Appendix B**). One individual responded with a phone call during the pre-assessment period and provided comments, as indicated by the X below.

In an additional effort to consult with the community regarding the proposed project, The Limtiaco Consulting Group attended a Neighborhood Board No. 26, Wahiawa/Whitmore Village “Special Meeting” held on December 12, 2007. The Limtiaco Consulting Group presented a description of the proposed WWTP improvement project. Comments and questions were solicited from the Wahiawa area residents and community members and were addressed by The Limtiaco Consulting Group during the meeting. Additionally, comments received during the meeting which relate to the Draft EA have been addressed herein. It should be noted that the Board Members of Neighborhood Board No. 26 voted unanimously in favor of the proposed WWTP improvements. A copy of the agenda for the “Special Meeting” is provided in **Appendix A**.

#### Federal Agencies

- Department of the Interior, U.S. Fish and Wildlife Service – Pacific Region
- √ Department of the Navy, Commander Navy Region Hawaii
- U.S. Army Corps of Engineers, Honolulu District, Environmental Technical Branch
- U.S. Army Corps of Engineers, Honolulu District, Regulatory Branch
- U.S. Army Garrison, Hawaii
- U.S. Environmental Protection Agency, Region 9 – Pacific Islands

#### State of Hawaii

- Department of Agriculture
- Department of Business, Economic Development & Tourism
- √ Department of Education
- Department of Health
- Department of Health, Environmental Planning Office
- Department of Health, Environmental Management Division
- Department of Health, Environmental Management Division, Clean Air Branch
- √ Department of Health, Environmental Management Division, Clean Water Branch
- Department of Health, Environmental Management Division, Safe Drinking Water Branch
- Department of Health, Environmental Management Division, Wastewater Branch
- Department of Health, Environmental Health Services Division
- √ Department of Health, Environmental Health Services Division, Noise, Radiation and Indoor Air Quality Branch
- √ Department of Land & Natural Resources
- √ Department of Land & Natural Resources, Commission on Water Resource Management

- Department of Land & Natural Resources, Historic Preservation Division
- √ Department of Transportation
  - Office of Hawaiian Affairs
  - Senator David Y. Ige, 16<sup>th</sup> Senatorial District
  - Senator Ron Menor, 17<sup>th</sup> Senatorial District
  - Senator Clarence K. Nishihara, 18<sup>th</sup> Senatorial District
  - Senator Mike Gabbard, 19<sup>th</sup> Senatorial District
  - Senator Robert Bunda, 22<sup>nd</sup> Senatorial District
  - Representative Alex Sonson, 35<sup>th</sup> Representative District
  - Representative Roy Takumi, 36<sup>th</sup> Representative District
  - Representative Ryan Yamane, 37<sup>th</sup> Representative District
  - Representative Marilyn B. Lee, 38<sup>th</sup> Representative District
  - Representative Marcus Oshiro, 39<sup>th</sup> Representative District
  - Representative Sharon E. Har, 40<sup>th</sup> Representative District,
  - Representative Jon R. Karamatsu, 41<sup>st</sup> Representative District
  - Representative Rida T.R. Cabanilla, 42<sup>nd</sup> Representative District
  - Representative Michael Magaoay, 46<sup>th</sup> Representative District

### City and County of Honolulu

- Department of Design and Construction
- Department of Environmental Services
- √ Department of Facility Maintenance
- √ Department of Parks and Recreation
- √ Department of Planning and Permitting
- Department of Transportation Services
- Board of Water Supply
- √ Honolulu Fire Department
- √ Honolulu Police Department
- Mayor's Office
- City Councilmember Donovan M. Dela Cruz, District 2
- City Councilmember Gary H. Okino, District 8
- City Councilmember Nestor Garcia, District 9
- Corporation Counsel
- Neighborhood Board No. 25, Mililani/Waipio/Melemanu
- Neighborhood Board No. 26, Wahiawa/Whitmore Village
- Neighborhood Board No. 27, North Shore

### Utilities

- Hawaiian Telcom
- √ Hawaiian Electric Company, Inc.
- √ Oceanic Time Warner Cable
- The Gas Company

### Other Interested Parties

- Agribusiness Development Corporation
- Ahupua`a Action Alliance
- Bank of Hawaii, Trust Real Estate
- Earth Justice
- Helemano Plantation

Dole Food Company Hawaii  
Del Monte Fresh Produce, Hawaii  
Gentry Waiawa – Waiawa Ridge Development, LLC  
George Galbraith Trust Estate  
Hawaii Lions District 50  
International Longshoreman Workers Union (ILWU) Local 142  
Mililani Golf Club  
Wahiawa General Hospital  
Wahiawa Community and Business Association  
Wahiawa Rainbows Club  
Friends of Kukaniloko  
Hawaii Audubon Society  
Hawaii Freshwater Fishing Association  
Hawaiian Civic Club of Wahiawa  
Life of the Land  
North Shore Outdoor Circle  
North Shore Waste Management Advisory Group

**Neighboring Property Recorded Fee Owners**

- X 7-3-017:102
- 7-3-017:015
- 7-3-017:014
- 7-3-017:013
- 7-3-017:012
- 7-3-017:011
- 7-3-017:010
- 7-3-017:009
- 7-3-017:008
- 7-3-017:007
- 7-3-017:006
- 7-3-017:005
- 7-3-017:004
- 7-3-017:003
- 7-3-017:002
- √ 7-3-017:001
- 7-3-019:014
- 7-3-019:011
- 7-3-019:001
- 7-3-019:009
- 7-3-019:010
- 7-3-019:013

## 8.2. Draft Environmental Assessment Consultation

The following agencies and interested parties will be consulted during the public review period of the Draft EA.

### Federal Agencies

Department of the Interior, U.S. Fish and Wildlife Service – Pacific Region  
Department of the Navy, Commander Navy Region Hawaii  
U.S. Army Corps of Engineers, Honolulu District, Environmental Technical Branch  
U.S. Army Corps of Engineers, Honolulu District, Regulatory Branch  
U.S. Army Garrison, Hawaii  
U.S. Environmental Protection Agency, Region 9 – Pacific Islands

### State of Hawaii

Department of Agriculture  
Department of Business, Economic Development & Tourism, Office of Planning  
Department of Education  
Department of Health, Environmental Planning Office (3 hardcopies)  
Department of Health, Environmental Management Division, Clean Water Branch  
Department of Health, Environmental Management Division, Wastewater Branch  
Department of Health, Environmental Health Services Division, Noise, Radiation and Indoor Air Quality Branch  
Department of Health, Office of Environmental Quality Control (2 hardcopies and 1 electronic copy [PDF version])  
Department of Land & Natural Resources (5 hardcopies)  
Department of Land & Natural Resources, Commission on Water Resource Management  
Department of Land & Natural Resources, Historic Preservation Division  
Department of Transportation  
Office of Hawaiian Affairs  
Senator Robert Bunda, 22<sup>nd</sup> Senatorial District  
Representative Marcus Oshiro, 39<sup>th</sup> Representative District

### City and County of Honolulu

Department of Design and Construction  
Department of Environmental Services  
Department of Facility Maintenance  
Department of Parks and Recreation  
Department of Planning and Permitting (5 hardcopies)  
Department of Transportation Services  
Board of Water Supply  
Mayor's Office  
City Councilmember Donovan M. Dela Cruz, District 2  
Corporation Counsel  
Neighborhood Board No. 26, Wahiawa/Whitmore Village  
Neighborhood Board No. 27, North Shore

### Utilities

Hawaiian Telcom

Hawaiian Electric Company, Inc.  
Oceanic Time Warner Cable

**Other Interested Parties**

Agribusiness Development Corporation  
Bank of Hawaii, Trust Real Estate (George Galbraith Trust Estate)  
Earth Justice  
Dole Food Company Hawaii  
Del Monte Fresh Produce, Hawaii  
Gentry Waiawa – Waiawa Ridge Development, LLC  
Wahiawa Community and Business Association  
Hawaii Freshwater Fishing Association

**Libraries and Repositories**

Hawaii State Library, Hawaii Documents Center (2 hardcopies)  
Wahiawa Public Library (2 hardcopies)  
Legislative Reference Bureau  
Library, Honolulu Department of Customer Services

**Neighboring Property Recorded Fee Owners <sup>1</sup>**

7-3-017:102  
7-3-017:015  
7-3-017:014  
7-3-017:013  
7-3-017:012  
7-3-017:011  
7-3-017:010  
7-3-017:009  
7-3-017:008  
7-3-017:007  
7-3-017:006  
7-3-017:005  
7-3-017:004  
7-3-017:003  
7-3-017:002  
7-3-017:001  
7-3-019:014  
7-3-019:011  
7-3-019:001  
7-3-019:009  
7-3-019:010  
7-3-019:013

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<sup>1</sup> A letter will be sent to the recorded fee owners of these neighboring properties. The letter will notify each owner of the availability of the Draft EA at the Wahiawa Public Library and Hawaii State Library and solicit comments during the public review.

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## 9. REFERENCES

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**APPENDIX A  
NEIGHBORHOOD BOARD NO.26, WAHIAWA/WHITMORE VILLAGE  
DECEMBER 12, 2007 "SPECIAL MEETING" AGENDA**





WAHIAWA-WHITMORE VILLAGE NEIGHBORHOOD BOARD NO. 26

c/o NEIGHBORHOOD COMMISSION • 530 SOUTH KING STREET ROOM 406 • HONOLULU, HAWAII, 96813  
PHONE (808) 768-3710 • FAX (808) 768-3711 • INTERNET: <http://www.honolulu.gov>

SPECIAL MEETING  
WEDNESDAY, WAHIAWA RECREATION CENTER  
1130 KILANI AVENUE  
WEDNESDAY, DECEMBER 12, 2007  
7:00 P.M.

ALL WAHIAWA/WHITMORE VILLAGE NEIGHBORHOOD BOARD NO. 26 MEETING SHALL BE HELD IN OPEN SESSION AND THE PUBLIC IS INVITED TO ATTEND.

- I. PRE-MEETING ACTIVITY AT 6:55 P.M.
- II. CALL TO ORDER AT 7:00 P.M. BY NB 26 CHAIR, BEN V. ACOHIDO.
- III. **PURPOSE AND SCOPE:** TO HOLD A COMMUNITY PUBLIC FORUM TO DISCUSS AND ACT UPON FOUR (4) ISSUES AFFECTING WAHIAWA AND RESIDENTS OF CENTRAL O`AHU.
  - A. REPRESENTATIVES FROM THE PUBLIC AND PRIVATE SECTORS WILL BE INVITED AS SPEAKERS FOR THEIR RESPECTIVE AGENDA ITEMS.
  - B. RESIDENT(S) ARE REQUESTED TO USE THREE (3) MINUTES FOR REMARKS AND WILL BE ALLOWED TWO SPEAKING TURNS ON A SPECIFIC DISCUSSION MATTER.
- IV. BUSINESS ORDER OF THE DAY TO BE GUIDED BY THE TIME INTERVALS INDICATED.
  - A. PRESENTATIONS FOLLOWED BY QUESTION AND ANSWER SESSIONS.
    1. 7:10 CASTLE & COOKE WAIAWA EIS.....C&C SPEAKERS  
7:20 QUESTION & ANSWER SESSION
    2. 7:30 BUILDING HEIGHT LIMITATIONS. CITY SPEAKER,  
COUNCILMEMBER DONOVAN DELA CRUZ  
7:45 QUESTIONS & ANSWER SESSION
    3. 7:55 BUS TRANSIT CENTER....CITY SPEAKER,  
COUNCILMEMBER DONOVAN DELA CRUZ  
8:15 QUESTION & ANSWER SESSION
    4. 7:55 SEWER SYSTEM  
IMPROVEMENTS.....CONSULTANT, CITY  
SPEAKER, COUNCILMEMBER D. DELA CRUZ  
8:20 QUESTION AND ANSWER SESSION
  - B. W/WNB NO.26, AFTER PRESENTATIONS, PUBLIC INPUTS,  
AND BOARD DISCUSSIONS, WILL ACT:
    1. EITHER TO SUPPORT, NOT SUPPORT, OR SUGGEST



MODIFICATIONS TO CASTLE & COOKE WAIAWA EIS;

2. EITHER TO SUPPORT, NOT SUPPORT, OR DEFER ON WAHIAWA BUILDING HEIGHT LIMITATIONS;
3. EITHER TO SUPPORT, NOT SUPPORT, OR SUGGEST MODIFICATIONS TO THE OPTIONS FOR WAHIAWA BUS TRANSIT CENTER; AND
4. EITHER TO SUPPORT, NOT SUPPORT, OR SUGGEST MODIFICATIONS TO THE MAJOR IMPROVEMENTS FOR WAHIAWA SEWER SYSTEM.

- C. NB 26 Recommendation for Three Capital Improvements for Wahiawa to Councilmember Donovan Dela Cruz

V. ANNOUNCEMENTS:

- A. BOARD MEMBERS AND PRESENTATIONS SPEAKERS WILL BE PRESENT AFTER THE CLOSE OF THE MEETING TO BE AVAILABLE TO THE GENERAL PUBLIC.
- B. ANNOUNCEMENTS BY OTHER COMMUNITY ORGANIZATIONS.
- C. *YOUR BOARD MEMBERS SEND ITS SEASON GREETINGS TO ALL . . . HAVE A SAFE AND JOYOUS HOLIDAY!*

V. CLOSING ACTIVITY:

- 8:55 P.M. SUMMARY OF MEETING KEY INFORMATION.
- 9:00 P.M. ADJOURNMENT

ANY INDIVIDUAL WISHING TO ATTEND A NEIGHBORHOOD MEETING WHO HAS QUESTIONS ABOUT ACCOMMODATIONS FOR A PHYSICAL DISABILITY OR A SPECIAL PHYSICAL NEED SHOULD CALL THE NEIGHBORHOOD COMMISSION OFFICE AT 768-3710 BETWEEN 8:00 A.M. AND 4:00 P.M. AT LEAST 24 HOURS BEFORE THE SCHEDULED MEETING.

**APPENDIX B  
PRE-ASSESSMENT CONSULTATION CORRESPONDENCE**





DEPARTMENT OF THE NAVY

COMMANDER  
NAVY REGION HAWAII  
850 TICONDEROGA ST STE 110  
PEARL HARBOR HI 96860-5101

5090  
Ser N45/00313  
November 29, 2007

**CERTIFIED MAIL NO. 7006 0100 0007 2053 6430**

Mr. Eugene C. Lee, P.E.  
Director  
City and County of Honolulu  
Department of Design and Construction  
650 South King Street, 11<sup>th</sup> Floor  
Honolulu, HI 96813

Dear Mr. Lee:

Thank you for the opportunity to review and comment on the project summary for the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility Project at Wahiawa, Oahu.

We do not have any comments on this project at this time.

Should you have any questions, please contact Ms. Mika Orimoto at [mika.orimoto@navy.mil](mailto:mika.orimoto@navy.mil).

Sincerely,

A handwritten signature in black ink, appearing to read "A. Y. Poentis", written in a cursive style.

A. Y. POENTIS  
Navy Regional Environmental  
Coordinator  
By direction of the  
Commander

Copy to: Mr. John Katahira, The Limtiaco Consulting Group



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

A.Y. Poentis, Navy Regional Environmental Coordinator  
Department of the Navy  
Commander  
Navy Region Hawaii  
850 Ticonderoga Street, Suite 110  
Pearl Harbor, Hawaii 96860

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Poentis,

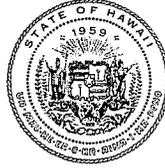
Thank you for your letter dated November 29, 2007 indicating that the Department of the Navy has no comments regarding the subject project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project) at this time.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch



STATE OF HAWAII  
DEPARTMENT OF EDUCATION  
P.O. BOX 2360  
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

November 27, 2007

Mr. Eugene C. Lee, P.E., Director  
City and County of Honolulu  
Department of Design and Construction  
650 South King Street, 11<sup>th</sup> Floor  
Honolulu, Hawaii 96813

Dear Mr. Lee:

SUBJECT: Pre-Assessment Consultation for the Draft Environmental Assessment for the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility, Wahiawa, Oahu (TMK: 7-3-07: 02)

The Department of Education has reviewed your request for pre-consultation on the potential impacts of improvements at the Wahiawa Wastewater Treatment Plant.

The project site sits in close proximity to the Kaala Elementary School on California Avenue. All construction vehicles traveling to or from the project site would be required to cross either directly in front of the entrance of the school on California Avenue or along the rear property line of the school on Kilani Avenue. The same would be true for vehicles accessing the treatment plant for operational purposes after the improvements are completed. Please address potential noise, dust, noxious odor, and traffic impacts that this project may have on the school or its grounds.

Please also discuss potential secondary impacts to the school should the ultimate design require that recycled water disposal pipes be constructed along California Avenue.

Should you have any questions, please call George Casen of the Facilities Development Branch at 733-4862.

Very truly yours,

Patricia Hamamoto  
Superintendent

PH:jmb

cc: Randolph Moore, Assistant Superintendent, OSFSS  
Duane Kashiwai, Public Works Administrator, FDB  
Patricia Ann Park, CAS, Leilehua/Mililani/Waiialua Complex Areas  
✓ John Katahira, The Limtiaco Consulting Group



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Patricia Hamamoto, Superintendent  
State of Hawaii  
Department of Education  
P.O. Box 2360  
Honolulu, Hawaii 96804

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Ms. Hamamoto,

Thank you for your letter dated November 27, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). The following items are offered in response to your written comments:

1. In addition to the various surrounding uses, tenants, and structures located in the vicinity of the Wahiawa WWTP project site, it is recognized that the project site is situated in close proximity to the Kaala Elementary School. Accordingly, Sections 3.8, 3.10, 3.13.1, and 3.14.1 of the forthcoming Draft Environmental Assessment (EA) discuss the subject project's potential noise, air quality, and traffic impacts on those uses, tenants, and structures at and in the vicinity of the Wahiawa WWTP project site (to include the Kaala Elementary School).
2. As stated in the forthcoming Draft EA, the City desires to enhance the Wahiawa WWTP's effluent quality and reliably produce "Department of Health (DOH) Class 1 recycled water (R-1) quality" recycled water for distribution and delivery by the Honolulu Board of Water Supply. Please note that the long-term effluent disposal strategies associated with the Wahiawa WWTP, including disposal and/or distribution of recycled water, are being considered and evaluated in the Central Oahu Wastewater Facilities Plan (COWFP) and its supporting Draft Environmental Impact Statement (EIS). Regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, WWTP improvements are needed and intended to occur. As such, please refer to the COWFP Draft EIS for detailed information regarding the various disposal strategies being considered, to include an evaluation of potential impacts associated with the preferred disposal strategy. The COWFP Draft EIS was recently published in the DOH, Office of Environmental Quality Control's *Environmental Notice* on January 23, 2008.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch



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

In reply, please refer to:  
EMD / CWB

11099PKP.07

November 30, 2007

Mr. John Katahira  
Project Manager  
The Lintiaco Consulting Group  
650 Iwilei Road, Suite 208  
Honolulu, Hawaii 96817

Dear Mr. Katahira:

**Subject: Pre-Assessment Consultation, Draft Environmental Assessment for the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility, Wahiawa, Oahu, Hawaii**

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at

<http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf>.

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. In order for the facility to produce R-1 quality water, there must be alternative disposal options.

Mr. John Katahira  
November 30, 2007  
Page 2

3. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class 2 State inland waters, you may apply for NPDES general permit coverage by submitting a Notice of Intent (NOI) form:

- a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. 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. An NPDES permit is required before the start of the construction activities.
- b. Hydrotesting water.
- c. Construction dewatering effluent.

You must submit a separate NOI form for each type of discharge at least 30 calendar days prior to the start of the discharge activity, except when applying for coverage for discharges of storm water associated with construction activity. For this type of discharge, the NOI must be submitted 30 calendar days before the start of construction activities. The NOI forms may be picked up at our office or downloaded from our website at:

<http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html>.

4. You must also submit a copy of the NOI to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the CWB that SHPD has or is in the process of evaluating your project. Please submit a copy of your request for review by SHPD or SHPD's determination letter for the project along with your NOI or NPDES permit application, as applicable.
5. After the proposed project is completed, the facility's Storm Water Pollution Control Plan should be updated and submitted to the CWB in accordance with its Notice of General Permit Coverage, File Number HI R90A361.
6. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 Water Quality Certification are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation.

Mr. John Katahira  
November 30, 2007  
Page 3

If you have any questions, please visit our website at  
<http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>, or contact the  
Engineering Section, CWB, at 586-4309.

Sincerely,

  
ALEC WONG, P.E., CHIEF  
Clean Water Branch

KP:np



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Alec Wong, P.E., Chief  
State of Hawaii  
Department of Health  
Clean Water Branch  
P.O. Box 3378  
Honolulu, Hawaii 96801-3378

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Wong,

Thank you for your letter dated November 30, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). The following items are offered in response to your written comments:

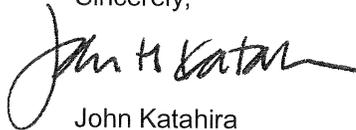
1. It is acknowledged that any project and its potential impacts to State waters must meet the rules and regulations contained in the Hawaii Administrative Rules (HAR) of the State Department of Health (DOH), Sections 11-54-1.1, 11-54-3, and 11-54-4 through 11-54-8.
2. It is understood that in order for the Wahiawa WWTP facility to obtain certification by the DOH as a "DOH Class 1 recycled water (R-1) quality" WWTP, as defined in DOH's 2002 water reuse guidelines, an alternative disposal option must be made available for the Wahiawa WWTP. As stated in the forthcoming Draft Environmental Assessment (EA), the City desires to enhance the Wahiawa WWTP's effluent quality for distribution and R-1 application. Please note that various alternative disposal options associated with the Wahiawa WWTP, including disposal and/or distribution of recycled water, are being considered and evaluated in the Central Oahu Wastewater Facilities Plan (COWFP) and its supporting Draft Environmental Impact Statement (EIS). Regardless of the alternative disposal option ultimately chosen for the Wahiawa WWTP, WWTP improvements are needed and intended to occur. As such, please refer to the COWFP Draft EIS for detailed information regarding the various alternative disposal options. The COWFP Draft EIS was recently published in the DOH, Office of Environmental Quality Control's *Environmental Notice* on January 23, 2008 and copies of the COWFP Draft EIS were distributed to the DOH.
3. We acknowledge the requirement to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for the discharge of pollutants into State surface waters. We are aware of the various Notice of Intent (NOI) forms which may be submitted for NPDES general permit coverage associated with the different types of discharges and the submittal requirements of the NOI forms. For the subject project, the City will apply for NPDES general permit coverage and comply with the NOI form submittal requirements as necessary. Specifically, a NPDES permit for discharges of construction dewatering effluent will be required should dewatering activities be necessary. Based on previously-conducted geotechnical investigations, dewatering activities are not anticipated to be necessary; however, an additional geotechnical survey will be conducted within the project site during

and in support of the design phase (if deemed necessary) and will determine whether groundwater is likely to be encountered within the project site. Additionally, a NPDES permit for discharges composed entirely of storm water runoff associated with construction activities that result in the disturbance of one acre or more of total land area will be required for the subject project. The types of activities associated with the subject project which may result in discharges into State surface waters have been incorporated and addressed in Sections 3.4 and 3.9 of the forthcoming Draft EA.

4. We understand the requirement to either submit a copy of the NOI form(s) to the State Department of Land and Natural Resources, Historic Preservation Division (SHPD) or demonstrate to the satisfaction of the DOH, Clean Water Branch that the SHPD has evaluated/is in the process of evaluating the subject project. Along with the submittal of any NOI form(s) or NPDES permit application(s) for the subject project, the City will submit a copy of the request for review by SHPD or SHPD's determination letter.
5. The City submitted a Storm Water Pollution Control Plan (SWPCP) for all WWTPs on Oahu in October 2007. The City acknowledges this requirement; therefore, after all of the subject proposed WWTP improvements are completed and in place, the City will update this SWPCP.
6. We acknowledge that any discharges related to the subject project's construction or operation activities shall comply with the applicable State Water Quality Standards and requirements specified in HAR, Chapter 11-54 and Chapter 11-55.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,



John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

LINDA LINGLE  
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.  
DIRECTOR OF HEALTH

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

In reply, please refer to:  
File:

November 19, 2007

TO: Eugene C. Lee, P.E., Director  
City & County of Honolulu  
Department of Design & Construction

FROM: Russell S. Takata, Program Manager  
Noise, Radiation & Indoor Air Quality Branch

SUBJECT: **Comments to Pre-Assessment Consultation, Draft Environmental Assessment Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade & Equalization Facility, Wahiawa, Oahu Tax Map Key: 7-3-07:02**

Our comments should be printed as follows:

“Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact me at 586-4701.

✓cc: John Katahira, Project Manager, The Limtiaco Consulting Group



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Mr. Russell S. Takata, Program Manager  
State of Hawaii  
Department of Health  
Noise, Radiation & Indoor Air Quality Branch  
P.O. Box 3378  
Honolulu, Hawaii 96801-3378

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Takata,

Thank you for your letter dated November 19, 2007 regarding the subject wastewater treatment plant improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). Your written comment item has been incorporated and addressed in Section 3.10 of the forthcoming Draft Environmental Assessment, which discusses the subject project's compliance with the provisions of the Administrative Rules of the State Department of Health, Title 11, Chapter 46, "Community Noise Control" noise regulations.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 30, 2007

Department of Design & Construction  
City & County of Honolulu  
650 South King Street 11th Floor  
Honolulu, Hawaii 96813

Gentlemen:

Subject: Pre-Assessment Consultation, Draft Environmental Assessment Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility, Wahiawa, Oahu, Tax Map Key: (1) 7-3-7:2

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

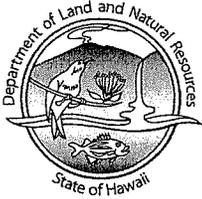
A handwritten signature in black ink, appearing to read "Morris M. Atta".

Handwritten initials "JA" in black ink, positioned to the left of the typed name.  
Morris M. Atta  
Administrator

LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 16, 2007

MEMORANDUM

TO: **DLNR Agencies:**  
 Div. of Aquatic Resources  
 Div. of Boating & Ocean Recreation  
 Engineering Division  
 Div. of Forestry & Wildlife  
 Div. of State Parks  
 Commission on Water Resource Management  
 Office of Conservation & Coastal Lands  
 Land Division – District

DEPARTMENT OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

2007 NOV 30 P 4: 03

RECEIVED  
LAND DIVISION

07 NOV 19 AM 09:38 ENGINEERING

FROM: *for* Morris M. Atta *Charlotte*  
SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility  
LOCATION: Wahiawa, Oahu, TMK: (1) 7-3-7:2  
APPLICANT: The Limtiaco Consulting Group on behalf of the City & County of Honolulu, Department of Design & Construction, Wastewater Division

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 1, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed *Caitie*

**DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION**

LD/MorrisAtta

Ref.: PreAssessConsDEAWahiawaWastewater  
Oahu.586

COMMENTS

- ( ) We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone \_\_\_\_.
- (X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone D. The Flood Insurance Program does not have any regulations for developments within Flood Zone D.**
- ( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is \_\_\_\_.
- ( ) Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- ( ) Mr. Robert Sumitomo at (808) 768-8097 or Mr. Mario Siu Li at (808) 768-8098 of the City and County of Honolulu, Department of Planning and Permitting.
  - ( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
  - ( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
  - ( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.
- ( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
  - ( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.
  - ( ) Additional Comments: \_\_\_\_\_  
\_\_\_\_\_
  - ( ) Other: \_\_\_\_\_  
\_\_\_\_\_

Should you have any questions, please call Ms. Suzie Agraan of the Planning Branch at 587-0258.

Signed:   
ERIC T. HIRANO, CHIEF ENGINEER  
Date: 11/30/07

LINDA LINGLE  
GOVERNOR OF HAWAII



Laura H. Thielen  
Chairperson  
Board of Land and Natural Resources  
Commission on Water Resource Management



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

December 5, 2007

Department of Design & Construction  
City & County of Honolulu  
650 South King Street 11th Floor  
Honolulu, Hawaii 96813

Gentlemen:

Subject: Pre-Assessment Consultation, Draft Environmental Assessment Wahiawa  
Wastewater Treatment Plant Influent Pump Station Upgrade and  
Equalization Facility, Wahiawa, Oahu, Tax Map Key: (1) 7-3-7:2

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Commission on Water Resource Management, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

A handwritten signature in cursive script that reads "Charlene E. Unoki".

for Morris M. Atta  
Administrator

LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED

07 NOV 16 P3:37



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

COMMISSION ON WATER  
RESOURCE MANAGEMENT

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

November 16, 2007

MEMORANDUM

*From*  
TO:

DLNR Agencies:

- Div. of Aquatic Resources
- Div. of Boating & Ocean Recreation
- Engineering Division
- Div. of Forestry & Wildlife
- Div. of State Parks
- Commission on Water Resource Management
- Office of Conservation & Coastal Lands
- Land Division – District

DEPT OF LAND &  
NATURAL RESOURCES  
STATE OF HAWAII

2007 DEC -14 P 3:52

RECEIVED  
LAND DIVISION

*To:*

FROM: *MM* Morris M. Atta *Thielen*  
SUBJECT: Pre-Assessment Consultation for Draft Environmental Assessment for Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility

LOCATION: Wahiawa, Oahu, TMK: (1) 7-3-7:2

APPLICANT: The Limtiaco Consulting Group on behalf of the City & County of Honolulu, Department of Design & Construction, Wastewater Division

Transmitted for your review and comment on the above referenced document. We would appreciate your comments on this document. Please submit any comments by December 1, 2007.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact my office at 587-0433. Thank you.

Attachments

- We have no objections.
- We have no comments.
- Comments are attached.

Signed: *[Signature]*



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Morris M. Atta, Administrator  
State of Hawaii  
Department of Land and Natural Resources  
Land Division  
P.O. Box 621  
Honolulu, Hawaii 96809

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

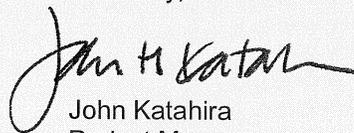
Dear Mr. Atta,

Thank you for your two letters dated November 30, 2007 and December 5, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). With each of your letters, you included a memorandum (dated November 16, 2007) sent from your office to three divisions of the Department of Land and Natural Resources (DLNR) requesting comments on the subject project. You received written comments from the Engineering Division and the Commission on Water Resource Management (CWRM). The following items are offered in response to those written comments:

1. Regarding the Engineering Division's written comment, it is recognized that the Wahiawa WWTP project site is located in Flood Zone D according to the Flood Insurance Rate Map and that the Flood Insurance Program does not have any regulations for developments within this flood zone. This written comment has been incorporated and addressed in Section 3.6 of the forthcoming Draft Environmental Assessment.
2. Per the written comment you received from the CWRM, we acknowledge that this DLNR division indicates it has no comments regarding the subject project. However, please note that a letter dated December 4, 2007 was received directly from the CWRM which presents two written comments regarding the subject project. Accordingly, a response letter addressing these two written comments has been sent directly to the CWRM.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,



John Katahira  
Project Manager

cc: Mr. Jay Hamaj, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
CHAIRPERSON  
MEREDITH J. CHING  
JAMES A. FRAZIER  
NEAL S. FUJIIWARA  
CHIYOME L. FUKINO, M.D.  
DONNA FAY K. KIYOSAKI, P.E.  
LAWRENCE H. MIKE, M.D., J.D.

KEN C. KAWAHARA, P.E.  
DEPUTY DIRECTOR

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
P.O. BOX 621  
HONOLULU, HAWAII 96809

December 4, 2007

REF: Wahiawa WWTP Pre-Assessment DEA.dr

TO: Eugene C. Lee, P.E., Director  
City and County of Honolulu  
Department of Design and Construction

FROM: Ken C. Kawahara, P.E., Deputy Director   
Commission on Water Resource Management

SUBJECT: Pre-Assessment Consultation, Draft Environmental Assessment  
Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization  
Facility, Wahiawa, Oahu, Tax Map Key: 7-3-07:02

FILE NO.:

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrn>.

Our comments related to water resources are checked off below.

- 1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
- 2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
- 3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM: Additional information and forms are available at [www.hawaii.gov/dlnr/cwrn/forms.htm](http://www.hawaii.gov/dlnr/cwrn/forms.htm).

- 4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.
- 5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
- 6. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

DRF-IA 03/02/2006

- 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.
- OTHER:

The Commission supports the development of alternative water sources, such as reclaimed wastewater, to help meet current and future demands.

If there are any questions, please contact Lenore Ohye at 587-0218.

LN:ss

c:  John Katahira, The Limtiaco Consulting Group



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Ken C. Kawahara, P.E., Deputy Director  
State of Hawaii  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Kawahara,

Thank you for your letter dated December 4, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). The following items are offered in response to your written comments:

1. Your recommendation regarding coordination with the respective Planning Department and/or Department of Water Supply in order to incorporate the subject project into the county's Water Use and Development Plan is recognized. Both the City and County of Honolulu's Department of Planning and Permitting (DPP) and Board of Water Supply (BWS) have been corresponded with regarding the subject project and will receive copies of the forthcoming Draft Environmental Assessment (EA).

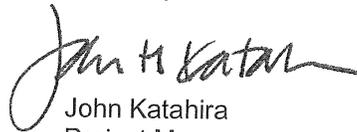
As stated in the forthcoming Draft EA, the City desires to enhance the Wahiawa WWTP's effluent quality and reliably produce "Department of Health (DOH) Class 1 recycled water (R-1) quality" recycled water for distribution and delivery by the BWS. Please note that the long-term effluent disposal strategies associated with the Wahiawa WWTP, including disposal and/or distribution of recycled water, are being considered and evaluated in the Central Oahu Wastewater Facilities Plan (COWFP) and its supporting Draft Environmental Impact Statement (EIS). Regardless of the disposal strategy ultimately chosen for the Wahiawa WWTP, WWTP improvements are needed and intended to occur. As such, please refer to the COWFP Draft EIS for detailed information regarding the various disposal strategies. The COWFP Draft EIS was recently published in the DOH, Office of Environmental Quality Control's *Environmental Notice* on January 23, 2008, and copies of the COWFP Draft EIS were distributed to the Commission on Water Resource Management, as well as both the DPP and BWS.

2. It is acknowledged that the Commission supports the development of alternative water sources (e.g., recycled wastewater) in order to help meet current and future water demands.

Mr. Kawahara  
January 28, 2008  
Page 2

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

A handwritten signature in black ink, appearing to read "John Katahira". The signature is fluid and cursive, with a long horizontal stroke at the end.

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

LINDA LINGLE  
GOVERNOR



BARRY FUKUNAGA  
DIRECTOR

Deputy Directors  
MICHAEL D. FORMBY  
FRANCIS PAUL KEENO  
BRENNON T. MORIOKA  
BRIAN H. SEKIGUCHI

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

STP 8.2680

November 20, 2007

Mr. Eugene C. Lee, P.E.  
Director  
Department of Design and Construction  
650 South King Street, 11<sup>th</sup> Floor  
Honolulu, Hawaii 96813

Dear Mr. Lee:

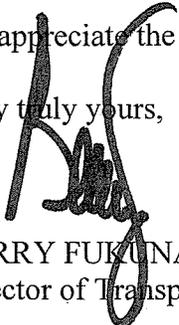
Subject: Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade  
and Equalization Facility  
Pre-Assessment Consultation and Draft Environmental Assessment (DEA)  
TMK: 7-3-07: 02

Thank you for requesting our review of the subject project.

The proposed project is not anticipated to significantly impact any State transportation facilities.

We appreciate the opportunity to provide comments.

Very truly yours,

  
BARRY FUKUNAGA  
Director of Transportation

c: John Katahira, The Limtiaco Consulting Group



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Brennon T. Morioka, Interim Director  
State of Hawaii  
Department of Transportation  
869 Punchbowl Street  
Honolulu, Hawaii 96813-5097

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Fukunaga,

Thank you for the Department of Transportation's letter dated November 20, 2007 indicating that the subject project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project) is not anticipated to significantly impact any State transportation facilities.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

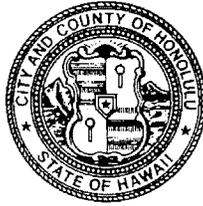
John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

DEPARTMENT OF FACILITY MAINTENANCE  
**CITY AND COUNTY OF HONOLULU**

1000 Uluohia Street, Suite 215, Kapolei, Hawaii 96707  
Phone: (808) 768-3343 • Fax: (808) 768-3381  
Website: www.honolulu.gov

MUFI HANNEMANN  
MAYOR



LAVERNE HIGA, P.E.  
DIRECTOR AND CHIEF ENGINEER

GEORGE "KEOKI" MIYAMOTO  
DEPUTY DIRECTOR

IN REPLY REFER TO:  
DRM 07-1017

November 29, 2007

Mr. John Katahira, Project Manager  
The Limtiaco Consulting Group  
650 Iwilei Road, Suite 208  
Honolulu, Hawaii 96817

Dear Mr. Katahira:

Subject: Pre-Assessment Consultation, Draft Environmental Assessment  
(DEA) – Wahiawa Wastewater Treatment Plant Influent Pump  
Station Upgrade and Equalization Facility, Wahiawa, Oahu,  
TMK:7-3-07:02

Thank you for giving us the opportunity to comment on the subject Pre-Assessment  
Consultation DEA. We have no comments to offer.

Should there be any questions, please contact Larry Leopardi, Chief of the Division  
of Road Maintenance, at 768-3600.

Sincerely,

A handwritten signature in black ink that reads "Laverne Higa".

Laverne Higa, P.E.  
Director and Chief Engineer



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Craig Nishimura, P.E., Acting Director and Chief Engineer  
City and County of Honolulu  
Department of Facility Maintenance  
1000 Uluohia Street, Suite 215  
Kapolei, Hawaii 96707

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Nishimura,

Thank you for the Department of Facility Maintenance's (DFM's) letter dated November 29, 2007 indicating that the DFM has no comments regarding the subject project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project).

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

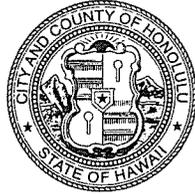
John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

DEPARTMENT OF PARKS AND RECREATION  
**CITY AND COUNTY OF HONOLULU**

KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707  
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5131 • INTERNET: [www.honolulu.gov](http://www.honolulu.gov)

MUFI HANNEMANN  
MAYOR



LESTER K.C. CHANG  
DIRECTOR

DANA TAKAHARA-DIAS  
DEPUTY DIRECTOR

November 26, 2007

TO: EUGENE C. LEE, P.E., DIRECTOR  
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: LESTER K. C. CHANG, DIRECTOR

SUBJECT: PRE-ASSESSMENT CONSULTATION, DEA  
WAHIAWA WASTEWATER TREATMENT PLANT INFLUENT PUMP  
STATION UPGRADE AND EQUALIZATION FACILITY, WAHIAWA,  
OAHU TMK 7-3-07:02

The Limtiaco Consulting Group has asked us to review a summary of the proposed project and send our comments to your office.

The Department of Parks and Recreation supports the proposed improvements that should allow the facility to reliably produce R-1 quality water for non potable water users such as City parks.

Should you have any questions, please contact Mr. John Reid, Planner, at 768-3017.

A handwritten signature in black ink, appearing to read "Lester K.C. Chang".

LESTER K. C. CHANG  
Director

LKCC:mk  
(236455)

cc: John Katahira, Project Manager, The Limtiaco Consulting Group



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Lester K.C. Chang, Director  
City and County of Honolulu  
Department of Parks and Recreation  
1000 Uluohia Street, Suite 309  
Kapolei, Hawaii 96707

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Chang,

Thank you for your letter dated November 26, 2007 indicating the Department of Parks and Recreation's support of those improvements proposed under the subject project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project) that should allow the Wahiawa Wastewater Treatment Plant to reliably produce R-1 quality water for non-potable water users, such as City parks.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

DEPARTMENT OF PLANNING AND PERMITTING  
**CITY AND COUNTY OF HONOLULU**

650 SOUTH KING STREET, 7<sup>TH</sup> FLOOR • HONOLULU, HAWAII 96813  
PHONE: (808) 768-8000 • FAX: (808) 527-6743  
DEPT. WEB SITE: [www.honolulu.gov](http://www.honolulu.gov) • CITY WEB SITE: [www.honolulu.gov](http://www.honolulu.gov)

MUFI HANNEMANN  
MAYOR



HENRY ENG, FAICP  
DIRECTOR

DAVID K. TANOUE  
DEPUTY DIRECTOR

07WWB112 (SG)

December 7, 2007

**MEMORANDUM**

TO: EUGENE C. LEE, P.E., DIRECTOR  
DEPARTMENT OF DESIGN AND CONSTRUCTION

ATTN: JAY HAMA  
WASTEWATER DIVISION

FROM: *for* *Dennis M. Nishimura*  
HENRY ENG, FAICP, DIRECTOR  
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: PRE-ASSESSMENT CONSULTATION  
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)  
WAHIAWA WASTEWATER TREATMENT PLANT (WWTP) INFLUENT PUMP  
STATION UPGRADE AND EQUALIZATION FACILITY  
TMK: 7-3-007: 002

This is in response to Mr. John Katahira's November 14, 2007 letter, requesting comments for the proposed Wahiawa WWTP improvement project. We have reviewed the project and have the following comments:

1. The DEA should discuss the project's general consistency with the Central Oahu Sustainable Communities Plan (CO SCP) – the City's long-range land use plan for this part of the island. (See especially pages 4-20 and 4-21 of the CO SCP)
2. If the DEA has a summary sheet stating the site's long-range land use designation, it should read:  
  
Central Oahu SCP designation: Agriculture and Preservation Areas, with a symbol for an existing Wastewater Treatment Plant.
3. The DEA should also discuss the purpose of the City's Public Infrastructure Maps (PIM), and should state that the project is already reflected on the Central Oahu PIM as symbol Number 40 (Wahiawa WWTP Modifications).

If you have any questions, please contact Mr. Scott Gushi of the Wastewater Branch at 768-8207.

HE:dl  
[585296]  
cc: Mr. John Katahira, Project Manager



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Henry Eng, FAICP, Director  
City and County of Honolulu  
Department of Planning and Permitting  
650 South King Street, 7<sup>th</sup> Floor  
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Eng,

Thank you for your letter dated December 7, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). The following items are offered in response to your written comments:

1. This written comment item has been incorporated and addressed in Section 4.4 of the forthcoming Draft Environmental Assessment (EA), which discusses the subject project's relationship to and general consistency with the Central Oahu Sustainable Communities Plan. Especially, those applicable public facilities and infrastructure policies on pages 4-20 and 4-21 of the Central Oahu Sustainable Communities Plan are addressed.
2. Per your comment item #2, the summary sheet of the forthcoming Draft EA states that the Wahiawa WWTP project site's long-range development plan land use designation is: Agriculture and Preservation Areas, with a symbol for an existing wastewater treatment plant.
3. A discussion of the purpose of the City's Public Infrastructure Maps (PIM) has been incorporated and addressed in Section 4.4 of the forthcoming Draft EA. Additionally, this section of the Draft EA includes a statement declaring that a request for revision of the Central Oahu PIM was submitted to the Department of Planning and Permitting for this subject WWTP improvement project in March 2007 and that the subject project is reflected on the Central Oahu PIM as symbol Number 40 (Wahiawa WWTP Modifications).

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

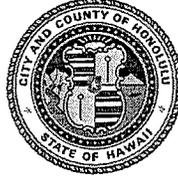
John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

HONOLULU FIRE DEPARTMENT  
**CITY AND COUNTY OF HONOLULU**

636 South Street  
Honolulu, Hawaii 96813-5007  
Phone: 808-723-7139 Fax: 808-723-7111 Internet: www.honolulu.gov/hfd

MUFI HANNEMANN  
MAYOR



KENNETH G. SILVA  
FIRE CHIEF

ALVIN K. TOMITA  
DEPUTY FIRE CHIEF

December 3, 2007

TO: EUGENE C. LEE, P.E., DIRECTOR  
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: KENNETH G. SILVA, FIRE CHIEF

SUBJECT: PREASSESSMENT CONSULTATION  
DRAFT ENVIRONMENTAL ASSESSMENT  
WAHIAWA WASTEWATER TREATMENT PLANT INFLUENT PUMP  
STATION UPGRADE AND EQUALIZATION FACILITY  
TAX MAP KEY: 7-3-007: 002

In response to a letter from John Katahira of The Limtiaco Consulting Group, dated November 14, 2007, regarding the above-mentioned subject, the Honolulu Fire Department reviewed the materials provided and has no objections to the project.

Should you have any questions, please call Acting Battalion Chief William H. Melemai III of our Fire Prevention Bureau at 723-7151.

A handwritten signature in black ink, appearing to read "Kenneth G. Silva".

KENNETH G. SILVA  
Fire Chief

KGS/SK:bh

cc: John Katahira, The Limtiaco Consulting Group  
Jay Hamai, Department of Design and Construction



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Kenneth G. Silva, Fire Chief  
City and County of Honolulu  
Honolulu Fire Department  
636 South Street  
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Silva,

Thank you for your letter dated December 3, 2007 indicating that the Honolulu Fire Department has no objections to the subject project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project).

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

POLICE DEPARTMENT  
CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET · HONOLULU, HAWAII 96813  
TELEPHONE: (808) 529-3111 · INTERNET: www.honolulu.org

MUFI HANNEMANN  
MAYOR



BOISSE P. CORREA  
CHIEF

PAUL D. PUTZULU  
MICHAEL D. TUCKER  
DEPUTY CHIEFS

OUR REFERENCE BS-KP

November 26, 2007

TO: EUGENE C. LEE, P.E., DIRECTOR  
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: BOISSE P. CORREA, CHIEF OF POLICE  
HONOLULU POLICE DEPARTMENT

SUBJECT: PRE-ASSESSMENT CONSULTATION, DRAFT ENVIRONMENTAL  
ASSESSMENT, WAHIAWA WASTEWATER TREATMENT PLANT INFLUENT  
PUMP STATION UPGRADE AND EQUALIZATION FACILITY,  
TAX MAP KEY: 7-3-07:02

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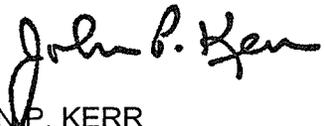
Thank you for the opportunity to review and comment on the subject project.

This project should have no significant impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Bart Huber of District 2 at 621-3725 or Mr. Brandon Stone of the Executive Office at 529-3644.

BOISSE P. CORREA  
Chief of Police

By

  
JOHN P. KERR  
Assistant Chief of Police  
Support Services Bureau

cc: ✓ Mr. John Katahira, Project Manager  
The Limtiaco Consulting Group



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Boisse P. Correa, Chief of Police  
City and County of Honolulu  
Police Department  
801 South Beretania Street  
Honolulu, Hawaii 96813

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Correa,

Thank you for your letter dated November 26, 2007 indicating that the subject project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project) should have no significant impact on the Honolulu Police Department's facilities or operations.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch



December 7, 2007

Mr. Eugene C. Lee, P.E.  
Director - Dept. of Design & Construction  
City & County of Honolulu  
650 South King St. -11<sup>th</sup> Floor  
Honolulu, HI 96813

Dear Mr. Lee:

**Re: Wahiawa Wastewater Treatment Plant  
Influent Pump Station Upgrade &  
Equalization Facility  
Wahiawa, Oahu (TMK: 7-3-07:02)**

Thank you for the opportunity to comment on the above-referenced project. Hawaiian Electric Company, Inc. (HECO) has no objections at this time. The following pre-assessment comments were received from our Engineering and Construction & Maintenance Departments:

- (1) HECO has existing facilities covered by easement within the subject parcel, and will require continued access for maintenance purposes. We appreciate your efforts to keep us apprised of the planning process. As the new waterline plans progress, please continue to keep us informed. We will be better able to evaluate any effects on our system facilities further along in the project's development. We request that development plans show all affected HECO facilities and address any conflicts between the proposed plans and HECO's existing facilities. Please forward the pre-final development plans to HECO for review. A brief description and environmental analysis of any requirements for relocation or new facilities should be included in the DEA.
- (2) Please describe in the DEA new or upgraded service that may be required to complete the project, and be advised that new HECO facilities may require negotiation of additional easements.
- (3) The need to relocate HECO's existing facilities should also be included in the DEA. Should it become necessary to relocate HECO's facilities, please submit a request in writing and we will work with you so that construction of the project may proceed as smoothly as possible. Please note that there may be costs associated with any relocation work, and that such costs may be borne by the requestor. Because any redesign or relocation of HECO's facilities may cause lengthy delays, upon determination that HECO facilities will need to be relocated or built, HECO should be notified immediately in order to minimize any delays in or impacts on the project schedule.

Mr. Eugene C. Lee  
December 7, 2007  
Page Two

Our point of contact for this project is Kerstan Wong, Director of Project Management, Engineering Department (543-7059). I suggest dealing directly with him to coordinate HECO's continuing input in this project.

Sincerely,



Kirk S. Tomita  
Senior Environmental Scientist

cc: J. Katahira (The Limtiaco Consulting Grp)  
K. Wong/R. Noda  
P. Nakagawa





THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Kirk S. Tomita, Senior Environmental Scientist  
Hawaiian Electric Company, Inc.  
P.O. Box 2750  
Honolulu, Hawaii 96840-0001

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Tomita,

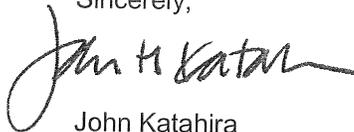
Thank you for your letter dated December 7, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). The following items are offered in response to your written comments:

1. It is recognized that Hawaiian Electric Company, Inc. (HECO) has existing electrical facilities covered by easement within the Wahiawa WWTP project site. HECO's facilities have been identified, and the location of all aboveground and underground utilities will be verified. Additionally, it is recognized that HECO will need continued access to its facilities and easements located within the project site for maintenance purposes. Per your request, HECO will continue to be informed as the subject project develops and the construction plans will show all affected HECO facilities and address any conflicts between the proposed plans and such facilities. Two sets of the construction plans for the proposed WWTP improvement project will be submitted for review. HECO will also be notified of the construction schedule and coordination activities will be executed as appropriate throughout the design and construction phases. Your comments have been incorporated and addressed in Section 3.14.5 of the forthcoming Draft Environmental Assessment (EA).
2. Section 3.14.5 of the forthcoming Draft EA discusses the potential need for any new or upgraded electrical service and any new HECO facilities that may be required to complete the subject project. Expansion of the Wahiawa WWTP's electrical system will be evaluated more fully and addressed during the design phase. It is recognized that if any new or upgraded electrical service is needed and any new HECO facilities are required, HECO shall be notified immediately and negotiation of additional easements may be necessary.
3. As discussed in Section 3.14.5 of the forthcoming Draft EA, it is possible that utility relocations may be required and the need for such utility relocations will be investigated further and verified during the design phase. It is understood that if the relocation of HECO facilities is necessary, a written request should be submitted to HECO so that construction of the subject project may proceed as smoothly as possible. It is acknowledged that the relocation of utilities would likely impact the actual construction cost of the subject project. As mentioned above, it is recognized that if any HECO facilities require relocating or any new HECO facilities are required, HECO shall be notified immediately.

Mr. Tomita  
January 28, 2008  
Page 2

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

A handwritten signature in black ink, appearing to read "John H. Katahira". The signature is fluid and cursive, with a long horizontal stroke at the end.

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

200 Akamainui Street  
Mililani, Hawaii 96789-3999  
Tel 808-625-2100  
Fax 808-625-5888



December 4, 2007

City and County of Honolulu  
Department of Design and Construction  
650 South King Street, 11<sup>th</sup> Floor  
Honolulu, Hi 96813

Attn: Mr. Eugene C. Lee, P.E., Director

**Subject: Pre-Assessment Consultation, Draft Environmental Assessment  
Wahiawa Wastewater Treatment Plant Influent Pump Station  
Upgrade and Equalization Facility (TMK: 7-3-07:02)**

Dear Mr. Lee,

Included with this letter is a copy of the original Review and Comment set submitted to Mr. Thomas Takeguchi, P.E. at Limtiaco Consulting Group. A color print with legend (*please note: Not all symbols may be used in the print*) has been included with the information you have requested. The route is marked in blue and the sections (aerial and underground) are outlined in red and labeled correspondingly.

As indicated in the letter to Mr. Takeguchi, Oceanic Time Warner Cable's (OTWC) infrastructure is located in the box and ducts of the comm. system at the WWTP. Since these facilities are owned and maintained by the City and County of Honolulu, we request ample notification to any changes or upgrades to this system in order minimize the down time to the services we provide at the main office building.

If you have any questions or concerns, please feel free to contact me at 625-9734 or 222-1019, or email me at [kerick.fujimura@twcable.com](mailto:kerick.fujimura@twcable.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Kerick Fujimura". The signature is fluid and cursive.

Kerick Fujimura  
OSP Engineer

200 Akamaimui Street  
Mililani, Hawaii 96789-3999  
Tel: 808-625-2100  
Fax: 808-625-5888



October 26, 2007

The Limtiaco Consulting Group  
650 Iwilei Road, Suite 208  
Honolulu, Hi 96817  
(808) 596-7790

Attn: Mr. Thomas K. Takeuchi, P.E.

**Subject: Wahiawa Wastewater Treatment Plant Influent Pump Station  
Upgrade and Equalization Basin (Project No.: 12007)**

Dear Mr. Takeuchi,

Thank you for your recent submittal of the above project. After checking through our database and a field inspection, I have included with this letter and map with the general locations of our underground plant. Please note that these drawings are for reference only. Currently, all underground facilities to be affected by the upgrade are not owned by Oceanic Time Warner Cable (OTWC). The occupied pull-boxes and conduits are owned and maintained by the City and County of Honolulu. For further details regarding layout, depth and actual route, please contact the City and County of Honolulu. .

If you have any questions or concerns, please feel free to contact me at 625-9734 or 222-1019, or email me at [kerick.fujimura@twcable.com](mailto:kerick.fujimura@twcable.com).

Sincerely,

A handwritten signature in black ink, appearing to read "Kerick Fujimura", with a long horizontal stroke extending to the right.

Kerick Fujimura  
OSP Engineer



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Kerick Fujimura, OSP Engineer  
Oceanic Time Warner Cable  
200 Akamainui Street  
Mililani, Hawaii 96789

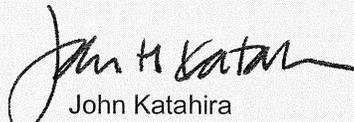
Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Fujimura,

Thank you for your letter dated December 4, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). Per the as-built drawings you provided with your December 4, 2007 letter and October 26, 2007 letter (to The Limtiaco Consulting Group), the existing location of all aboveground and underground cable utilities within the Wahiawa WWTP project site have been identified. Additionally, it is understood that Oceanic's infrastructure is located in the box and ducts of the communication system at the WWTP. All underground cable facilities within the project site are not currently owned by Oceanic; all occupied pull-boxes and conduits are owned and maintained by the City. Per your request, Oceanic will be notified of any potential changes or upgrades to the existing communication system in order to minimize impacts to cable services. Oceanic will be notified of the construction schedule and coordination activities will be executed as appropriate throughout the design and construction phases. Your comments have been incorporated and addressed in Section 3.14.5 of the forthcoming Draft Environmental Assessment.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

  
John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Mr. George Nakahira  
61 A Mikimiki Place  
Wahiawa, Hawaii 96786

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

Dear Mr. Nakahira,

Thank you for your phone call on November 19, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). The following items are offered in response to your verbal comments:

1. It is our understanding that you suggest relocating the Wahiawa WWTP to a location somewhere near Schofield Barracks. You stated that you were involved in previous meetings where you vocalized this suggestion at that time also. Please note that relocating the Wahiawa WWTP is not part of the scope of work for the subject project, although your concern has been forwarded to the City.
2. It is also our understanding that you suggest disposing of the Wahiawa WWTP's effluent into the Dole irrigation ditch and/or Kaukonahua Stream. Please note that various effluent disposal alternatives associated with the Wahiawa WWTP are being considered and evaluated in the Central Oahu Wastewater Facilities Plan (COWFP) and its supporting Draft Environmental Impact Statement (EIS). Regardless of the disposal alternative ultimately chosen for the Wahiawa WWTP, WWTP improvements are needed and intended to occur. As such, please refer to the COWFP Draft EIS for detailed information regarding the various disposal alternatives. The COWFP Draft EIS was recently published in the Department of Health, Office of Environmental Quality Control's *Environmental Notice* on January 23, 2008. A copy of the COWFP Draft EIS has been distributed to the Wahiawa Public Library (820 California Avenue, Wahiawa, HI 96786) and the Wahiawa Neighborhood Board #26.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,

John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch

23 November 2007

Conrad & Teresita Tamondong  
101 California Avenue  
Wahiawa, HI 96786

John Katahira, Project Manager  
The Limtiaco Consulting Group  
650 Iwilei Road, Suite 208  
Honolulu, HI 96817

Dear Mr. John Katahira,

We are writing in regards to the Wahiawa Wastewater Treatment Plant Influent Pump Station upgrade and equalization. As a home-owner of the property at 101 California Avenue, our main concern is the noise factor generated by the pumps specifically during the night until the early morning hours. We can distinctly hear the existing pumps operating in the distance during the quiet hours of early morning. With the proposed upgrade, the pump facility will be placed closer proximity to all the homes which will disturb the peaceful sleep of the residents.

Another concern of ours is the size (height and diameter) and proximity of the off-specification storage tanks. The proposed tanks closest to the entry gate nearly encompasses the back view of our house which presents a security issue. Presently, trespassers and intruders can be seen openly from the sewage treatment plant area. It would be nice to have the existing chain-link fence be raised another four feet to an even ten feet altogether with barbed-wire attached on top.

Sincerely,

  
Conrad Tamondong

  
Teresita Tamondong



THE LIMTIACO CONSULTING GROUP  
CIVIL ENGINEERING AND ENVIRONMENTAL CONSULTANTS

January 28, 2008

Conrad and Teresita Tamondong  
101 California Avenue  
Wahiawa, Hawaii 96786

Subject: Pre-Assessment Consultation  
Wahiawa Wastewater Treatment Plant Modifications  
Tax Map Key: 7-3-07:002  
Wahiawa, Oahu, Hawaii

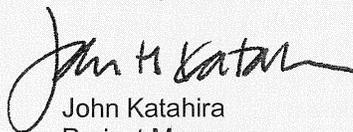
Dear Mr. and Mrs. Tamondong,

Thank you for your letter dated November 23, 2007 regarding the subject proposed wastewater treatment plant (WWTP) improvement project (previously referred to as the Wahiawa Wastewater Treatment Plant Influent Pump Station Upgrade and Equalization Facility project). The following items are offered in response to your written comments:

1. Specific to your first written comment, preliminary treatment facilities are generally sources of audible noise, and it is acknowledged that the new preliminary treatment facility will be located within closer proximity to those residences located along the Wahiawa WWTP's northern boundary than under existing conditions. Therefore, in order to minimize and mitigate potential noise impacts, the entire new preliminary treatment facility will be enclosed as part of the proposed project improvements. This enclosure will significantly reduce the risk of noise impacts, and no significant adverse noise impacts are anticipated due to the completion and operation of this proposed facility. This written comment has been incorporated and addressed in Section 3.10 of the forthcoming Draft Environmental Assessment (EA), which discusses in detail the subject project's potential noise impacts and new noise sources and the various noise control and mitigation measures to be implemented as part of the proposed project.
2. Per your second written comment item, the design and construction of a wall (e.g., solid concrete masonry unit wall) along the Wahiawa WWTP's northern boundary is being considered by the City as a component of the proposed project. This feature will be evaluated during the design phase. In addition to serving as safety/privacy remediation, this feature will also potentially 1) reduce the risk of noise impacts generated as a result of operating the proposed WWTP improvements and 2) minimize potential visual impacts associated with the off-specification storage tanks. This information has been incorporated and addressed in Sections 3.10, 3.12, and 3.13.1 of the forthcoming Draft EA.

Your participation in the pre-assessment consultation phase of the environmental review process is appreciated. Should you have any questions, please contact me at 596-7790.

Sincerely,



John Katahira  
Project Manager

cc: Mr. Jay Hamai, City and County of Honolulu, Department of Design and Construction,  
Wastewater Division, Planning Branch