

DEPARTMENT OF PLANNING

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October 25, 2024

Mary Alice Evans, Interim Director
Environmental Review Program
Office of Planning and Sustainable Development
State of Hawaii, Department of Business, Economic
Development And Tourism,
235 South Beretania Street, Room 702
Honolulu, Hawai'i 96813

Subject: **Final Environmental Assessment (FEA) and Finding of No Significant Impact (FONSI)
for: Ching Young Village Waste Water Treatment Plant
Kaua'i Tax Map Key Nos. (4) 5-5-002:040 and 022
Hanalei, Kaua'i, Hawai'i**

Dear Director Mary Alice Evans,

The County of Kaua'i Department of Planning hereby transmits the Final Environmental Assessment and Finding of No Significant Impact (FEA-FONSI) for the subject property located as Kaua'i Tax Map Key Nos. (4) 5-5-002:040 and 022 on the Island of Kaua'i, for publication in the next available publication of The Environmental Notice.

Ching Young Village proposes to replace the existing wastewater treatment and effluent disposal system with a new wastewater treatment plant within the limits of the existing system.

The Draft Environmental Assessment and Anticipated Finding of No Significant Impact (DEA-AFONSI) was published in the OEQC's June 23, 2024 issue of The Environmental Notice. The FEA received no comments during the 30-day comment period.

As stated in the findings of Table 7.1 of the FEA, the Department of Planning has determined that the project will not have a "significant effect" or "significant impact" on the quality of the environment and issues a FONSI.

If there are any questions, please contact Romio Idica at (808)241-4056 or ridica@kauai.gov.

Me Ke Aloha Pūmehana,

KA'AINA S. HULL
Director of Planning

From: webmaster@hawaii.gov
To: [DBEDT OPSD Environmental Review Program](#)
Subject: New online submission for The Environmental Notice
Date: Monday, October 28, 2024 3:03:09 PM

Action Name

Ching Young Village Wastewater Treatment Plant Upgrade Project

Type of Document/Determination

Final environmental assessment and finding of no significant impact (FEA-FONSI)

HRS §343-5(a) Trigger(s)

- (9)(A) Propose any wastewater treatment unit, except an individual wastewater system or a wastewater treatment unit serving fewer than fifty single-family dwellings or the equivalent

Judicial district

Hanalei, Kaua'i

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

(4) 5-5-002:040

Action type

Applicant

Other required permits and approvals

Special Management Area Permit

Discretionary consent required

Comprehensive Zoning Ordinance (CZO). Special Management Area

Agency jurisdiction

County of Kauai

Approving agency

Kauai County Planning Department

Agency contact name

Romio Idica

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[Map It](#)

Applicant

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Applicant contact name

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Applicant contact phone

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Applicant address

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[Map It](#)

Is there a consultant for this action?

Yes

Consultant

Laulea Engineering LLC

Consultant contact name

Brian Carroll

Consultant contact email

brian@lauleallc.com

Consultant contact phone

(808) 389-8267

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Action summary

The Project consists of replacing the existing wastewater treatment and effluent disposal system with a new wastewater treatment plant within the limits of the existing system. The proposed wastewater treatment plant was designed based on the total amount of wastewater generated by the Ching Young Village Shopping Center. An existing 4-foot diameter wet well/lift station will convey the wastewater via two (2) Liberty Omnivoire Grinder pumps and the existing 4-inch diameter force main sewage line to the existing 8,000-gallons capacity equalization basin. From the equalization tank, the effluent will be pumped to new aerobics moving bed biofilm reactor [MBBR] treatment plant consisting of partitioned

tanks for the functions of: flow equalization, secondary treatment, clarification, and waste solids holding. Effluent from the MBBR secondary treatment will flow through a new UV Disinfection system and flow to the injection well disposal system.

Reasons supporting determination

The Project is not anticipated to degrade environmental quality; it is anticipated to protect environmental quality by providing upgraded wastewater treatment. The Project is intended to replace the existing wastewater treatment system to accommodate present day flows and reduce the risk of future wastewater spills. The Project site has already been developed and any adverse impacts related to the proposed WWTP will primarily be limited within the property boundary. Due to the rural nature of the general area, other significant development projects are not anticipated. Therefore, the incremental effects of the proposed WWTP combined with the effects of other past, present, and reasonably foreseeable future actions are not cumulatively considerable. The Project does not involve a commitment to larger actions. In fact, it will replace Ching Young Village Shopping Center's existing wastewater treatment system, which will help reduce the need for additional actions.

Attached documents (signed agency letter & EA/EIS)

- [Letter-10.25.24_Ching-Young-Village-WWTP_EA-FONSI_Final.pdf](#)
- [2024-Ching-Young-Village-Final-EA-Report.pdf](#)

Shapefile

- The location map for this Final EA is the same as the location map for the associated Draft EA.

Action location map

- [CYV-Site-Location-MapAttachments.pdf.zip](#)

Authorized individual

Brian Carroll

Authorization

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

**Final
ENVIRONMENTAL ASSESSMENT**

**Ching Young Village Wastewater Treatment Plant
5-5190 Kuhio Highway
Hanalei, Hawaii 96714**

TMK: (4) 5-5-002:040



P.O. Box 29855
Honolulu, Hawaii 96825

environmental@lauleallc.com

Final Environmental Assessment

**Ching Young Village Wastewater Treatment Plant
5-5190 Kuhio Highway
Hanalei, Hawaii 96714**

TMK: (4) 5-5-002:040

**Prepared for:
Ching Young Village Ltd. Partnership
5-5190 Kuhio Highway
Hanalei, Hawaii 96714**

**Prepared by:
Laulea Engineering LLC.
P.O. Box 29855
Honolulu, Hawaii 96825**

October 21, 2024

Project Summary

Approving Agency:	Kauai County Planning Department 4444 Rice Street, Suite 473 Lihue, Hawaii 96766
Tax Map Key and Property Detail:	(4) 5-5-002:040 & (4) 5-5-002:022 2.818 acres
State Land Use District:	Urban
Existing County Zoning:	C-G General Commercial
County Development Plan:	Kauai General Plan
Special Designation:	Special Management Area
Determination:	Finding of No Significant Impacts (Anticipated)
Pre-Consultation Agencies:	State of Hawaii, County of Kauai, United States Fish and Wildlife Service

TABLE OF CONTENTS

EXECUTIVE SUMMARY	ES-1
SECTION 1 INTRODUCTION.....	1-1
1.1 Purpose	1-1
1.2 General Information.....	1-1
1.3 Property Description	1-1
1.4 Property Location and Setting	1-2
1.5 Project Background	1-2
1.6 Description of Existing Facilities	1-3
1.7 Parties Consulted During EA Process.....	1-3
1.7.1 Pre-Assessment Consultation.....	1-3
1.7.2 Final EA Review.....	1-4
SECTION 2 PROPOSED PROJECT DESCRIPTION.....	2-1
2.1 Electrical Supply	2-2
2.2 Wastewater Disposal and Sampling	2-2
2.3 Estimated Cost and Timing Phase of Construction	2-2
2.4 Alternatives to the Proposed Project	2-2
2.4.1 No Action	2-2
2.4.2 Postponed Action.....	2-3
2.4.3 Alternative Wastewater Treatment Systems	2-3
2.4.4 Alternative Wastewater Treatment System Locations.....	2-3
SECTION 3 PLANS, PERMITS, POLICIES, AND CONTROLS.....	3-1
3.1 Environmental Policies, Plans, Permits, and Controls	3-1
3.1.1 Environmental Review Policy.....	3-1
3.1.2 Project Consistency with KPD Land Use Ordinance.....	3-1
3.1.3 Special Management Area Rules and Regulations.....	3-3
3.1.4 Water Pollution Control	3-3
3.1.5 Wastewater systems.....	3-4
3.1.6 Air Quality Standards	3-5
3.1.7 Coastal Zone Management.....	3-5
3.1.8 State Environmental Policy	3-7
3.1.9 Flood Area Hazards	3-7
3.2 Social and Economic Policies, Plans, and Controls.....	3-8
3.2.1 Hawaii State Plan.....	3-8
3.2.2 Hawaii State Land Use Controls	3-9
3.2.3 Kauai County General Plan	3-9

3.3	Building, Grading, Fire Permits.....	3-10
SECTION 4	PHYSICAL ENVIRONMENT AND POTENTIAL IMPACTS	4-1
4.1	Potential Land Impacts	4-1
4.1.1	Existing Topographic and Geological Conditions	4-1
4.1.2	Potential Topographic and Geological Impacts and Mitigation	4-2
4.1.3	Existing Storm Water Conditions	4-2
4.1.4	Potential Storm Water Impacts and Mitigation.....	4-2
4.2	Potential Water Impacts	4-3
4.2.1	Existing Hydrogeological Conditions.....	4-3
4.2.2	Potential Hydrogeological impacts and mitigations.....	4-4
4.3	Potential Biological Impacts.....	4-4
4.3.1	Existing Biological Condition.....	4-4
4.3.2	Potential Biological Impacts and Mitigation.....	4-5
4.4	Potential Air Quality Impacts	4-6
4.4.1	Existing Air Quality Conditions.....	4-6
4.4.2	Potential Air Quality Impacts and Mitigations.....	4-6
4.5	Potential Noise Impacts.....	4-7
4.5.1	Existing Noise Conditions	4-7
4.5.2	Potential Noise Impacts and Mitigation.....	4-7
4.6	Climatological Conditions and Impacts.....	4-8
4.6.1	Existing Climatological Conditions.....	4-8
4.6.2	Potential Impacts related to Climate Change.....	4-8
SECTION 5	SOCIAL ENVIRONMENT AND POTENTIAL IMPACTS	5-1
5.1	Land Use	5-1
5.1.1	Existing Land Use	5-1
5.1.2	Potential Land Use Issues	5-1
5.2	Social and Economic Issues.....	5-1
5.2.1	Existing Social and Economic Conditions.....	5-1
5.2.2	Potential Social and Economic Impacts.....	5-2
5.3	Historic, Archeological, and Cultural Resources	5-2
5.3.1	Existing Historic, Archeological, and Cultural Resources	5-2
5.3.2	Potential Impacts to Historic, Archeological, and Cultural Resources	5-2
5.4	Visual and Aesthetic Appeal.....	5-2
5.4.1	Existing Visual and Aesthetic Appeal.....	5-2
5.4.2	Potential Impacts to the Visual and Aesthetic Appeal.....	5-2
5.5	Recreational Activities and Area.....	5-3
5.5.1	Existing Recreational Activities and Areas.....	5-3
5.5.2	Potential Impacts to the recreational activities.....	5-3
SECTION 6	INFRASTRUCTURE AND POTENTIAL IMPACTS	6-1

6.1	Traffic and Roads	6-1
6.1.1	Existing Transportation Infrastructure	6-1
6.1.2	Potential Impacts to traffic and roads Mitigation methods.....	6-1
6.2	UTILITIES.....	6-2
6.2.1	Existing Utilities in the Area	6-2
6.2.2	Potential Impacts to Utilities in the Area	6-2
SECTION 7	DETERMINATION	7-1
7.1	FINDINGS AND REASONS SUPPORTING THE DETERMINATION.....	7-1
SECTION 8	REFERENCES.....	8-1

LIST OF TABLES

<u>NUMBER</u>	<u>TITLE</u>	<u>PAGE</u>
7.1	Evaluation of Significant Criteria	7-2

LIST OF FIGURES

<u>NUMBER</u>	<u>TITLE</u>
Figure 1	Regional Location and Topographic Map
Figure 2	Tax Map
Figure 3	State Land Use Map
Figure 4	County of Kauai Zoning Map
Figure 5	Site Location
Figure 6	Site Plan
Figure 7	Site Plan & Aerial Map
Figure 8	UIC Line and Well Location Map
Figure 9	Benthic Map
Figure 10	Relative Sea Level Change Scenarios for Nawiliwili Bay
Figure 11	Sea Level Rise Exposure Map
Figure 12	Flood Hazard Map
Figure 13	Storm Surge Hazard Map

LIST OF APPENDICES

<u>APPENDIX</u>	<u>TITLE</u>
A	Site Photographs
B	Comments and Responses
C	Basis of Design
D	Manufacturers Literature

LIST OF ACRONYMS AND ABBREVIATIONS

<u>Acronym</u>	<u>Definition</u>
amsl	above mean sea level
BFE	base flood elevation
bgs	below ground surface
BOD	Biochemical Oxygen Demand
BMP	Best Management Practice
CAB	Clean Air Branch
CWB	Clean Water Branch
CYV	Ching Young Village
CZM	Coastal Zone Management
CZO	Comprehensive Zoning Ordinance
dba	A-weighted decibel
DLNR	Department of Land and Natural Resources, State of Hawaii
HDOH	Department of Health, State of Hawaii
EA	Environmental Assessment
EIS	Environmental Impact Statement
FONSI	Finding of No Significant Impact
GIS	Geographic Information System
gpd	Gallons per day
HAR	Hawaii Administrative Rules
HRS	Hawaii Revised Statutes
KCAP	Climate Adaptation Plan
KIUC	Kauai Island Utility Cooperative
KPD	Kauai Planning Department
KPC	Kauai Planning Commission
LSB	Land Study Bureau
MBBR	Moving Bed Biofilm Reactor
MBR	Membrane Bioreactor
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
OEQC	Office of Environmental Quality Control
OPSD	Office of Planning and Sustainable Development
SAAQS	State Ambient Air Quality Standards
SDWB	Safe Drinking Water Branch
SHPD	State Historic Preservation Division
SBR	Single Batch Reactor
SMA	Special Management Area
SSI	Stamford Scientific International
STP	Sewer Treatment Plant
TMK	Tax Map Key
UIC	Underground Injection Control
USFWS	U.S. Fish and Wildlife Service

Acronym
WWTP

Definition
Wastewater Treatment Plant

EXECUTIVE SUMMARY

This Environmental Assessment was prepared on behalf of Ching Young Village LTD. Partnership for the wastewater treatment plant replacement project, hereinafter referred to as the “Project”, at the Ching Young Village Shopping Center. The Project is located at 5-5190 Kuhio Highway in Hanalei, Hawaii, herein after referred to as the “Property”. The Property is identified as Tax Map Key No. (4) 5-5-002:040. The Project consists of replacing the existing wastewater treatment and effluent disposal system with a new wastewater treatment plant within the limits of the existing system. The purpose of the Environmental Assessment is to determine whether or not the Project has the potential to cause significant environmental impacts in or around the Project area. The Environmental Assessment was conducted in accordance with the requirements of the Hawaii EIS Law (HRS Chapter 343 and HAR Chapter 11-200).

The applicant for construction of the wastewater treatment plant is the Ching Young Village LTD. Partnership. The approving agency for the proposed activity is the County of Kauai Planning Department, which is responsible for administering the Comprehensive Zoning Ordinance and other regulations pertaining to land use within the County. The Environmental Assessment is necessary because the Project is located within the State of Hawaii Special Management Area and requires a Special Management Area Use Permit. In accordance with the County of Kauai Special Management Area Rules and Regulations, an Environmental Assessment and finding of no significant impact are required when applying for the Special Management Area Use Permit.

The Property is zoned as general-commercial and is located within an urban district in Hanalei on the north side of Kauai. The Property is developed with small businesses, several restaurants, and two parking lots. The Property is approximately 115 feet northeast of and below the Underground Injection Control line and at a surface elevation of approximately 9 feet above mean sea level. Hanalei Bay and the Pacific Ocean are approximately 390 feet to the northeast of the Property. Locally, the topographic surface gradient is relatively flat.

For wastewater treatment, the Ching Young Village Shopping Center currently utilizes a comminutor, an aerobic digester, an aeration tank fed by two Aerzen Delta Blowers, and a clarifying tank. Treated effluent is then discharged into seven (7) existing seepage pit/injection wells by gravity. The existing wastewater treatment and effluent disposal system was installed in 1982 and has been operating consistently for at least 40 years. As the useful life of any wastewater treatment system is generally 20 to 25 years, the system is in need of an upgrade to increase the efficiency of wastewater treatment and to include newer technologies that are currently available.

The proposed wastewater treatment plant will consist of:

- The existing wet well/lift station.
- A preloader/equalization basin.
- A primary treatment tank/system consisting of:
 - An integrated clarifier tank.

- An integrated sludge holding tank.
- An electromagnetic flowmeter.
- A new emergency generator and fuel tank using Liquefied Petroleum Gas or Diesel.
- An injection well disposal system.
 - Piping to injection wells.
 - Modification of two (2) injection wells to a primary deep injection well.
 - Modification of one (1) injection well to a backup deep injection well.
 - Existing five (5) seepage pits for additional overflow capacity.
- Modification of the perimeter fencing.

The new wastewater treatment plant components will all be constructed in the location of the existing wastewater treatment plant in the northwestern corner of the Property. The proposed wastewater treatment plant was designed based on the total amount of wastewater generated by the Ching Young Village Shopping Center. The new wastewater treatment plant is designed to treat up to 15,000 gallons per day. The current effluent disposal system can currently handle 8,550 gallons per day, the new deep injection wells will be able to handle at least 15,000 gallons per day each.

Impacts to the surrounding environment are expected to be less than significant and related to construction activities, such as storm water runoff, noise, dust, and construction traffic. Efforts to minimize such impacts will be taken to the extent practicable. Long-term impacts of the new wastewater treatment plant are improved environmental conditions related to a reduction in wastewater overflows.

Findings and Conclusions

Based on the analysis of information in this environmental assessment, it has been determined that the proposed wastewater treatment plant will have no significant impacts to the natural, built, or social environment. The results of the environmental assessment were compared with the significance criteria established by the State of Hawaii under HRS 343 (HAR Chapter 11-200.1 - 13). It is concluded that the construction and operation of the proposed wastewater treatment plant do not meet any of the thirteen criteria. By not meeting these criteria, it is appropriate that the proposed wastewater treatment plant be issued a Finding of No Significant Impacts and that an Environmental Impact Statement not be required.

SECTION 1 INTRODUCTION

This report describes the Environmental Assessment [EA] performed by Laulea Engineering LLC. on behalf of the Ching Young Village LTD. Partnership, for the replacement of the wastewater treatment plant [WWTP] at the Ching Young Village [CYV] Shopping Center, herein after referred to as the “Project”, which is located at 5-5190 Kuhio Highway in Hanalei, Hawaii, hereinafter referred to as the “Property” (Figure 1). The Property is owned by the Steve Ching Trust, the Steve Ching Revocable Living Trust, the Mary Ching Revocable Living Trust, and Michael Ching, hereinafter referred to collectively as the “Owners”. The Property is identified by the County of Kauai Real Property Assessment Division as Tax Map Key [TMK] numbers (4) 5-5-002:040 [Parcel 40] and (4) 5-5-002:022 [Parcel 022]. It is located on land zoned as *C-G General Commercial*.

1.1 PURPOSE

This Final EA analyzes the potential impacts to the significant criteria listed in Hawaii Administrative rules [HAR] Chapter 11-200.1-13 to determine whether or not the Project has the potential to cause significant environmental impacts and to determine if an Environmental Impact Statement [EIS] will be required or not under the Hawaii Revised Statutes [HRS] Chapter 343. This EA was conducted in accordance with Hawaii’s Environmental Review process to provide a Project description, list necessary permits and approvals, identify potential environmental impacts, provide mitigation measures, and seeks agency and public comment. This Final EA will be published in the Office of Sustainable Planning and Development’s [OPSD] bi-weekly periodic bulletin, *The Environmental Notice*, which will commence a 30-day public comment period. Comments received during the comment period will be considered and addressed to the extent feasible within the Project scope and evaluation. All relevant public comments received during the public comment period will be included in the preparation of the Final EA. A Finding of No Significant Impact [FONSI] is anticipated.

1.2 GENERAL INFORMATION

The Project consists of removing the existing wastewater treatment and effluent disposal system and constructing a new WWTP and effluent disposal system within the limits of the existing system. The approving agency for the proposed activity is the County of Kauai Planning Department [KPD], which is responsible for administering the Comprehensive Zoning Ordinance [CZO] and other regulations pertaining to land use within the county. This Final EA is necessary because the Project is located within the State of Hawaii Special Management Area [SMA] limits and requires an SMA use permit. An EA and FONSI are required when applying for the SMA Use permit.

1.3 PROPERTY DESCRIPTION

The CYV Shopping Center is a mall complex consisting of four (4) two-story buildings, five (5) single story buildings, and a stage and seating area. The buildings on the Property are used for retail stores, restaurants, and office space for approximately 43 tenants. The buildings are centrally located towards the north side of the Property with four (4) of the buildings along the

southeast boundary. There are two asphalt paved parking lots on the Property. The primary parking lot is located on the west and south portions of the Property and a second parking lot on the northeast corner of the Property. The existing WWTP is located on the northwest portion of the Property on Parcel 040.

The Property occupies 2.818 acres of land on the north shore of Kauai and lies within the SMA limits. The Property is bordered on the north by land owned by the Ching family, and privately-owned property; On the west by privately-owned property; On the south by Kuhio Highway and the Hanalei Center; and on the east by Aku Street and the Hanalei Kauhale Center. A site plan depicting the layout of the Property is provided in Figures 6 and 7.

1.4 PROPERTY LOCATION AND SETTING

The Property is located in the town of Hanalei, in the Hanalei Ahupuaa of the Halelea Moku on the north side of Kauai Island. The Property is on historical wetlands that were previously owned by T.C.B Rooke in the 19th century and was primarily used for agriculture and as public lands. The primary crop grown in the area at the time was rice and taro. In 1906, Mr. Ching Young immigrated to Hanalei from China and built the original Ching Young Storefront, and rice mill on the eastern portion of the Property. By 1982, the Ching family had purchased additional properties adjacent to the west and a portion of the properties were consolidated into a single parcel which is now identified as TMK Fourth Taxation Division Zone 5, Section 5, Plat 002, Parcel 040.

The Property is located within an urban general commercial district which has been developed with small businesses, several restaurants and two parking lots. The properties adjacent to the Property are zoned as open district and residential to the north, agricultural district to the southwest, neighborhood commercial to the east and south and general commercial to the west (Figure 4). The Property is approximately 115 feet northeast and below the Underground Injection Control [UIC] line (Figure 8). The elevation of the Property is approximately 9 feet above mean sea level and the topography in the area is relatively flat (Figure 1). Hanalei Bay and the Pacific Ocean are approximately 0.25 miles to the northeast of the Property.

The Property is located in a flood hazard Zone AE (HPD, 2021) (Figure 12). The area is subject to inundation by the 1% annual chance flood event and mandatory flood insurance purchase applied in this zone. Additional information on flood hazard zones is provided in Section 4.

1.5 PROJECT BACKGROUND

The CYV Shopping Center currently utilizes a 7,000-gallon capacity wastewater system which was installed in 1982. Although the majority of the original system remains, the aeration process of the treatment system formerly a STM-Aerotor™ manufactured by Westech Corporation has been replaced with a forced air process. The system is in need of an upgrade due to the advanced age of the system, the availability of newer technologies which will increase the efficiency of wastewater treatment, and to limit any liability that can arise from future deterioration of the WWTP. Ching Young Village Partnership LTD has initiated this Project to evaluate various alternatives to upgrade and replace the existing WWTP. The recommendation is to replace the

existing WWTP with an increased capacity WWTP and to utilize 5 of the 7 existing injection wells while expanding the remaining 2 injection wells for an increase in volume of waste disposal.

1.6 DESCRIPTION OF EXISTING FACILITIES

According to the Hawaii Department of Health [HDOH] Wastewater Branch records, the CYV Shopping Center generates approximately 6,400 gallons per day [gpd] average daily flow of wastewater from the restaurants, public restrooms and small businesses on the Property.

The wastewater is collected by an existing 4-foot diameter 7,000-capacity wet well equipped with a submersible lift pump. The wet well functions as a trash tank for preliminary treatment of the wastewater influent before it is pumped through the existing treatment system. The treatment system consists of a comminutor, an aerobic digester, an aeration tank fed by two Aerzen Delta Blowers, and a clarifying tank. Treated effluent is then discharged by gravity to a distribution box interconnecting four seepage pit/injection wells. The effluent disposal system also includes three back up seepage pit/injection wells.

There are seven existing injection wells that are permitted through the HDOH Safe Drinking Water Branch [SDWB] UIC program under permit number UK-2232 (HDOH, 2019c). Effluent data from the existing wastewater treatment system complies with UIC permit standards (< 60 milligrams per liter [mg/L] for biochemical oxygen demand [BOD] and < 60 mg/L for total suspended solids).

The existing WWTP has had no reported violations or field citations and is in generally good overall condition. However, deterioration can be seen on areas of the aeration tank and clarification tank. The aeration tank was previously fitted with a STM-Aerotator™ rotary arm manufactured by Westech Engineering which has since been removed due to malfunction.

1.7 PARTIES CONSULTED DURING EA PROCESS

1.7.1 PRE-ASSESSMENT CONSULTATION

During preparation of the Final EA, pre-consultation letters were mailed to the following agencies in April 2023 to request initial comments on the proposed WWTP:

County of Kauai

- Kauai Planning Department
- Kauai Department of Water*
- Kauai District Health Office
- Kauai Fire Department
- Kauai Police Department

State of Hawaii

Department of Health

- Environmental Planning Office
- Safe Drinking Water Branch*
- Clean Water Branch
- Wastewater Branch
- Clean Air Branch
- Office of Planning and Sustainable Development

Department of Land and Natural Resources [DLNR]

- Commission on Water Resource Management
- Engineering Division
- Office of Conservation and Coastal Lands
- Land Division
- State Historic Preservation Division [SHPD]*
- Division of Aquatic Resources
- Division of Forestry and Wildlife

Department of Transportation, Highways Division

Office of Hawaiian Affairs

Office of Planning and Sustainable Development*

Federal Agencies

United States Fish and Wildlife Service [USFWS]*

The agencies marked with an asterisk (*) provided comments (or responded with no comments). Copies of the comments received from the agencies and the follow-up responses are included in Appendix B. Comments received from the agencies were addressed during preparation of the Final EA.

1.7.2 FINAL EA REVIEW

Copies of the Final EA will be distributed to all agencies that were sent pre-consultation letters and the following agencies to provide an opportunity for their review and comment:

State of Hawaii

Hawaii State Library

Community Organizations

Hanalei Watershed Hui

Comments received from agencies will be incorporated into the Final EA, as appropriate.

SECTION 2 PROPOSED PROJECT DESCRIPTION

The proposed WWTP replacement will consist of the following:

- Retaining the existing wet well/lift station.
- Salvaging the existing equalization tank.
- Installing a new above ground secondary treatment tank/system that is approximately 42-feet long x 12-feet wide x 12-feet high and includes:
 - An Integrated Sludge Holding Tank.
- Installing a new modular utility enclosure.
- Installing a new emergency generator and fuel tank utilizing either liquefied petroleum gas or diesel fuel.
- Modification of the existing injection well disposal system including the following changes:
 - Piping to injection wells.
 - Modification of two (2) injection wells to primary deep injection wells.
 - Modification of one (1) injection well to a backup deep injection well.
 - Existing four (4) seepage pits for additional overflow capacity.
 - A new WWTP perimeter fencing.

The new WWTP components will be constructed in the location of the existing WWTP located on the northwest corner of the Property and expand the existing WWTP footprint by 100 square feet to the south. The system was designed based on the total amount of wastewater generated by the CYV Shopping Center tenants and customers. The system will be designed to accommodate a design maximum daily flow rate of 15,000 gpd and a sludge generation rate of approximately 100 pounds per day. The wastewater computations are provided in a Basis of Design and Engineering Report included in Appendix B.

An existing 4-foot diameter wet well/lift station will convey the wastewater via two (2) Liberty Omnivoire Grinder pumps and the existing 4-inch diameter force main sewage line to the existing 8,000-gallons capacity equalization basin. From the equalization tank, the effluent will be pumped to new aerobics moving bed biofilm reactor [MBBR] treatment plant consisting of partitioned tanks for the functions of: flow equalization, secondary treatment, clarification, and waste solids holding. Effluent from the MBBR secondary treatment will flow through a new UV Disinfection system and flow to the injection well disposal system.

2.1 ELECTRICAL SUPPLY

The electrical components of the new WWTP will be connected to the existing onsite generator which will be serviced by Kauai Island Utility Cooperative [KIUC], through a branch circuit from the Property's building circuit.

A generator utilizing diesel fuel or liquified propane gas will provide emergency power from a separate fuel tank to the WWTP blowers and existing well well/lift station.

2.2 WASTEWATER DISPOSAL AND SAMPLING

Of the seven existing injection wells, four will be utilized as-is and the remaining three will be expanded for an increase in volume of waste disposal. There will be five (5) primary injection wells, and two (2) back up wells. Treated effluent flow from the new WWTP will be split between seven injection wells using control valves. The WWTP operator can also take treated effluent samples from the effluent box feeding the effluent pumps.

Per HAR Chapter 11-62 requirement (HDOH, 2016a), each new injection well should be designed to handle the peak flow. A peaking factor of 1.5 will be applied to the design daily flow of 15,000 gpd to obtain the rounded up peak flow of 30,000 gpd; therefore, each injection well field must accommodate a peak flow of 30,000 gpd.

The five (5) primary injection wells combined are designed to accommodate the peak flow. The additional two (2) back up wells combined are designed as a 100% redundancy as required by HAR Chapter 11-62 (HDOH, 2016a).

2.3 ESTIMATED COST AND TIMING PHASE OF CONSTRUCTION

The estimated cost for the WWTP is approximately \$2,000,000 including professional services. The source of funding for the Project will be exclusively provided by the Ching Young Family LTD. Partnership dba Ching young Village Shopping Center. The proposed WWTP will take approximately 6 to 12 months after the completion of the Final EA and receipt of the SMA Use permit and all agency approvals.

2.4 ALTERNATIVES TO THE PROPOSED PROJECT

2.4.1 NO ACTION

The "no action" alternative would consist of leaving the existing WWTP as is. The existing system as described in Section 1.6 is generally in fair condition, however, deterioration is evident on the system and additional deterioration could eventually lead to a risk of wastewater spills. Impacts may include violations, citations, and potentially fines imposed by the HDOH. Due to the advanced age of the existing WWTP, DOH has inquired about a replacement of the WWTP and as such the no action alternative to the proposed project is not a viable option.

2.4.2 POSTPONED ACTION

The “postponed action” would consist of leaving the existing WWTP as is and replacing the existing WWTP at a future date. As with the “no action” alternative, the existing system is generally in good condition and could be replaced at a future date. However, deterioration is evident on the system and additional deterioration could eventually lead to a risk of wastewater spills. To reduce this risk the Owners have opted to preemptively upgrade the system. As DOH has inquired about a potential replacement of the WWTP, the postponed action alternative to the proposed project is not a viable option.

2.4.3 ALTERNATIVE WASTEWATER TREATMENT SYSTEMS

The following two alternative, available wastewater treatment systems were evaluated, and a comparative analysis was performed prior to the selection of the proposed WWTP. For comparison purposes, the estimated cost for the proposed Stamford Scientific Internationals [SSI] Moving Bed Biofilm Reactor [MBBR] brand WWTP is \$590,000.

1. Fluidyne Corporation’s ISAM™ Sequencing Batch Reactor [SBR] system. The SBR system consists of an anaerobic chamber where influent enters the system reducing BOD and allowing suspended solids settle. The influent then flows to a surge anoxic mix [SAM] reactor and undergoes carbon and nitrogen reduction before filling the SBR basin to be aerated. Once denitrification is complete, the SBR basin is allowed to settle, and effluent is withdrawn from the upper portion of the SBR basin via a fixed solids excluding decanter. Cost of system is estimated at \$485,000. Although this system is similar to the proposed SSI MBBR brand wastewater treatment system, the MBBR technology of the SSI system was considered to be better.
2. Cloacina LLC’s Membrane Bioreactor [MBR] Forward Activated Sludge and membrane clarification wastewater treatment system. The MBR system consists of primary treatment, forward activated sludge to provide motive force, and membrane clarification as a final stage. Cost of the system is estimated at \$719,930. Although the system is similar to the proposed SSI brand wastewater treatment system, the treatment with the MBBR system was considered to be better and at a cheaper cost. Therefore, this system was not selected.

2.4.4 ALTERNATIVE WASTEWATER TREATMENT SYSTEM LOCATIONS

There are no other viable onsite locations on the Property due to existing parking spaces. The proposed location is the optimal location as it is the location of the existing WWTP. Meaning the location is efficient for the construction and operation of the new WWTP with respect to the influent and effluent lines going to the disposal injection wells

SECTION 3 PLANS, PERMITS, POLICIES, AND CONTROLS

The proposed WWTP is in compliance with the required government and community plans, permits, policies, and controls. These are described below.

3.1 ENVIRONMENTAL POLICIES, PLANS, PERMITS, AND CONTROLS

3.1.1 ENVIRONMENTAL REVIEW POLICY

The requirements for performing an EA are contained within the Hawaii EIS Law, set forth in HRS 343 (HDOH, 1974a) and HAR Chapter 11-200.1 (HDOH, 2019b). According to HRS 343, the purpose of the Hawaii EIS Law is to establish a system of environmental review to ensure that environmental concerns are given appropriate consideration in the decisions made by the State of Hawaii. The Intent of the law was to implement the requirements under the federal National Environmental Policy Act.

The Hawaii EIS Law is administered and regulated by the State of Hawaii OPSD; formerly known as the Office of Environmental Quality Control [OEQC]. The OSPD oversees the implementation of these regulations in order to assess the environmental, social, and economic consequences of a proposed development project prior to allowing the construction of the project to commence. The Hawaii EIS Law ensures that the public has the right to knowledge of and participation in the planning of projects that will affect their communities. The OPSD has issued guidelines for the environmental review process (OEQC, 2012).

There are nine types of actions that trigger the environmental review process under the Hawaii EIS law. The proposed WWTP is subject to an environmental review under HRS §343-5(a)(9)(A): “Propose any wastewater treatment unit, except an individual wastewater system or wastewater treatment unit serving fewer than fifty single family dwellings or the equivalent.” Furthermore, development within the SMA is subject to the County of Kauai SMA Rules and Regulations to ensure that the project is consistent with the policies and objective of the Hawaii Coastal Zone Management [CZM] Law under HRS Chapter 205A. The controlling purpose of the CZM law is “to provide effective management, beneficial use, protection and development of the coastal zone.” The Project is a wastewater treatment unit and is within the SMA, Therefore, the Project is subject to the Hawaii EIS Law.

3.1.2 PROJECT CONSISTENCY WITH KPD LAND USE ORDINANCE

The following discussion includes analysis of the proposed WWTP consistency with applicable County of Kauai land use ordinances as amended in Title IV of the Kauai County Code [KCC], Chapter 8: *Comprehensive Zoning Ordinance* (KCC, 1987).

Article 2: Designation of Districts, Method and Effect of Establishment of Districts, and Zoning Maps.

Section 8-2.2 to 8-2.3 of the CZO established the method of establishing a district and provides the official zoning map titles for the County of Kauai. Section 8-2.4 of the CZO identifies the

requirement for a Use Permit within a zoning district as well as the permitted uses and structures within the district. Based on the zoning map ZM-HA700, the Property is within a General Commercial and Project Development District.

The use of the Property as offices and professional buildings, restaurants and food services, retail sales, and supermarkets and shopping centers are all permitted uses within the general commercial district. The proposed construction of the WWTP would not affect the zoning of the Property. Because the existing Sewer Treatment Plant [STP] and sewer pump station accessory uses were included as part of the commercial center's development project approved under Class IV Zoning Permit Z-IV-78-55 and Special Management Use Permit SMA(U)-78-19 by the Kauai Planning Commission [KPC] on October 13th, 1978, and a Project Development Use Permit will not be needed for the proposed project. However, due to the expansion of the STP and expected \$2,000,000 development cost, an SMA Use Permit will be required.

Article 3: General Administrative Regulations

Section 8-3.1 and Section 8-3.2 of the CZO establishes the procedure and fees required for the application for and the approval of zoning permits and Use Permits, respectively. The proposed WWTP will require the Owners of the Property to comply with all procedures required for the existing Class IV Zoning permit (see Article 6).

Article 6: Commercial Districts

Section 8-6.2 establishes the types of commercial districts and the uses of the districts. The Site is zoned as General Commercial and is identified as containing services which are frequently required and utilized by residents of all ages and which can be compatibly located in close proximity to residential districts.

Section 8-6.3 establishes the development standard for commercial development and includes ordinances pertaining to lot size, setback requirements, minimum distances between buildings, parcel dimensions, driveways and parking areas, height limitations, lot coverage, sewers, and public access. The proposed WWTP is to be constructed on the current location of the existing WWTP and when completed will extend approximately 100 feet to the south beyond the footprint of the existing WWTP structure.

Article 10: Project Developments

Article 10 of the CZO establishes which lands can be developed in accordance with a Use permit and establishes any permits that are required for permitted uses, structures and development. Furthermore, Article 10 lists the requirements for obtaining Project Development Use permits. The Property is zoned as general commercial and over 1 acre of land which qualifies the Property as a Project Development; However, since the existing STP and sewer pump station accessory uses were included under Class IV Zoning Permit Z-IV-78-55 and Special Management Use Permit SMA(U)-78-19 was previously approved by the KPC, a Project Development Use Permit will not be needed for the proposed project. Due to the expansion of the STP and expected \$2,000,000 development cost, an SMA Use Permit will be required.

Articles 4, 5, 7 to 9, and 11 to 30 are not applicable to the proposed WWTP replacement project.

3.1.3 SPECIAL MANAGEMENT AREA RULES AND REGULATIONS

The SMA rules and regulations are administered and regulated by the KPD through the authority conferred by HRS §205A. The purpose of the SMA rules is to “preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawaii.” The Project is located within the SMA, and therefore must undergo the procedural steps set forth in HRS 343 prior to an SMA permit being issued. Although the Hawaii CZM program (HPD, 1977) rules and regulations are referenced separately in this report (see section 3.1.7), these are rules that are administered by the SMA rules and regulations and under the authority conferred to KPD by HRS §205A.

The CYV Shopping center is in the process of preparing an SMA Use Permit application for the Proposed WWTP described in Section 2. The permit application will be submitted following the acceptance of the Final EA and issuance of a FONSI.

3.1.4 WATER POLLUTION CONTROL

Water pollution control requirements and regulations governing the Property are administered and regulated by the HDOH Clean Water Branch [CWB]. The requirements and regulations are contained in HAR Chapters 11-54 and 11-55 (HDOH, 2014b, 2019a). The purpose of these regulations is to prevent the discharge of contaminated water into the navigable waters of the United States or adjoining shorelines.

The Property and the planned construction activities meet the State’s *Antidegradation Policy* (HAR §11-54-1.1), which states that “existing uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.” By “existing uses,” the policy refers to the existing uses of the receiving State water. In addition, the Property and the planned construction activities comply with the State’s water quality standards (HAR Chapter 11-54), and the planned construction activities will not adversely impact water quality. The Project does not require Section 401 Water Quality Certification (HAR Chapter 11-53).

In addition to State water pollution control requirements and regulations, the County of Kauai Rules Relating to Water Quality apply to all development and land disturbing activities within the County of Kauai.

During construction of the proposed WWTP, erosion control measures and land-based sources of pollution barrier measures will be implemented to prevent sediment from entering the ocean. These measures include sediment fences, silt screens, and environmental socks.

The Project will comply with the prevailing rules relating to water quality. Appropriate Best Management Practices [BMP] will be used during construction of the proposed WWTP to prevent the discharge of the aforementioned pollutants of concern into coastal waters. Specific mitigation measures to prevent pollution and protect water quality are discussed in Section 4.2.2.

3.1.4.1 Water Quality

Construction of the proposed WWTP will be in accordance with State and Federal water quality regulations. Since the proposed WWTP will be a fully contained system no increase in runoff quantities will be associated with this project. The injection wells associated with the proposed WWTP are currently permitted by the HDOH SDWB (see Section 3.3).

3.1.4.2 Storm Water Associated with Construction Activity

The Project will not disturb more than an acre of land and, therefore, does not require an NPDES permit for discharges of storm water associated with construction activity.

3.1.4.3 Drinking Water Sources

The protection of Hawaii's drinking water sources is under the oversight of the HDOH SDWB. According to the SDWB (<http://health.hawaii.gov/sdwb>), its mission is as follows.

"The mission of the SDWB is to safeguard public health by protecting Hawaii's drinking water sources (surface water and groundwater) from contamination and assure that owners and operators of public water systems provide safe drinking water to the community. This mission is accomplished through the administration of the Safe Drinking Water Program, UIC Program, Groundwater Protection Program, and the Drinking Water State Revolving Fund."

The UIC program serves to protect the quality of Hawaii's underground sources of drinking water from chemical, physical, radioactive, and biological contamination that could originate from injection well activity. Underground injection wells are wells used for injecting water or other fluids into a groundwater aquifer. HAR Chapter 11-23 (HDOH, 1992) provides conditions governing the location, construction, and operation of injection wells so that injected fluids do not migrate and pollute underground sources of drinking water.

The Property is located below (makai of) the UIC line, indicating that the underlying aquifer is not considered a drinking water source. Approval from the SDWB's UIC program was obtained for installation and operation of the seven existing injection wells associated with the proposed WWTP (HDOH, 2019c).

3.1.5 WASTEWATER SYSTEMS

Wastewater system requirements and regulations are administered and regulated by the HDOH Wastewater Branch. The requirements and regulations can be found in HAR Chapter 11-62 (HDOH, 2106a). The purpose of these regulations is to ensure that the disposal of wastewater and wastewater sludge do not contaminate or pollute valuable water resources and do not become a hazard or potential hazard for public health, safety, and welfare. The proposed WWTP design plans and specifications must be reviewed and approved by the HDOH Wastewater Branch prior to construction and must conform to the applicable provisions of HAR Chapter 11-62.

3.1.6 AIR QUALITY STANDARDS

Air quality standards are administered and regulated by the HDOH Clean Air Branch. The requirements and rules are documented in HAR 11-59 (HDOH, 2001) and HAR 11-60.1 (HDOH, 2014a). The purpose of these standards is to protect public health and welfare, and to prevent significant deterioration of air quality.

The proposed WWTP is not anticipated to be a significant source of air pollution. Construction and operation of the WWTP will be required to comply with all applicable air quality standards. The potential impacts to air quality are addressed in Section 4.4.

3.1.7 COASTAL ZONE MANAGEMENT

The purpose of the Hawaii CZM (HPD, 1977) is to provide for the management, beneficial use, protection, and development of the coastal zone. The CZM area encompasses all lands of the State and the offshore area out to the limit of the States police power and management authority. The CZM Program's objective and policies include recreational resources, historic resources, scenic and open space resources, coastal ecosystems, economic uses, coastal hazards, development management, public participation, beach protection and marine resources. The CZM program is administered through the SMA rules and regulations by KPD under the authority conferred by HRS §205A.

The Property is within the CZM, and the proposed WWTP conforms to CZM Program objectives and policies, it will not have any significant impacts or conflict with the resource and activities associated with the CZM program, as described below.

3.1.7.1 Recreational Resources

The proposed WWTP will not generate additional demands on the existing public parks or beaches. It will not restrict access to or adversely affect the existing coastal recreational resources or their uses by the public. Thus, the proposed WWTP is not in conflict with the State's objective of providing coastal recreational opportunities that are accessible to the public. The potential impacts to recreational resources are addressed in Section 5.5.

3.1.7.2 Historic Resources

The proposed WWTP will not be located in an area where there are man-made or natural historic resources. Thus, the proposed WWTP is not in conflict with the state's objective of protecting, preserving, and restoring historic and prehistoric resources that are significant in Hawaiian and American history and culture. The potential impacts to historical and cultural resources are addressed in Section 5.3.

3.1.7.3 Scenic and Open Space Resources

The proposed WWTP will not interrupt the intermittent visual continuity and rural character of the area. The proposed WWTP is not in conflict with the State's objective of protecting, preserving,

restoring, or improving the quality of the open space resources. The potential impacts to visual and aesthetic appeal and mitigation measures are addressed in Section 5.4.

3.1.7.4 Coastal Ecosystems

The proposed WWTP is not located in an area where there are sensitive coastal ecosystems that could be threatened. Thus, the proposed WWTP is not in conflict with the State's objective of protecting valuable coastal ecosystems from disruption and minimizing adverse impacts to coastal ecosystem. The potential impacts to coastal ecosystems are addressed in Section 4.3.

3.1.7.5 Economic Uses

The proposed WWTP is not located in an area where there are economic uses that could be threatened. Thus, the proposed WWTP is not in conflict with the State's objective of providing public or private facilities and improvements important to the State's economy in suitable locations. Land use and economic issues are addressed in Sections 5.1 and 5.2.

3.1.7.6 Coastal Hazards

The proposed WWTP is not located in an area where there may be coastal hazards, however it potentially could be threatened by tsunamis or potential hazards related to climate change, such as extreme sea level rise. The proposed WWTP is not threatened by storm waves, flooding, erosion, subsidence, or pollution from coastal sources. The WWTP is not in conflict with the State's objective of reducing the hazards to life and property posed by tsunamis, storm waves, stream flooding, erosion, subsidence, and pollution. The potential impacts posed by sea level rise are addressed in Section 4.6.

3.1.7.7 Managing Development

The proposed WWTP is in an area where there is minimal ongoing development. The proposed WWTP is not a significant coastal development and is not in conflict with the State's objective of improving the development review process, communication, and public participation in the management of coastal resources and hazards. The proposed WWTP replacement project will not in itself facilitate an increase in development or daily usage.

3.1.7.8 Public Participation

State and County permits and approvals required by the proposed WWTP include provisions for public participation and ensure protection of coastal resources. The public will be provided the opportunity to participate in the review of the Final EA and provide comments. Thus, the proposed WWTP is not in conflict with the State's objective of stimulating public awareness, education, and participation in coastal management. A list of recipients who will be provided with a copy of the Final EA is provided in Section 1.7.

3.1.7.9 Beach Protection

The proposed location for the WWTP is not located in an area that will adversely impact beaches for public use, thus, the proposed WWTP is not in conflict with the State's objective of protecting beaches for public use and recreation. The potential impacts to recreational resources are addressed in Section 5.5.

3.1.7.10 Marine Resources

The proposed WWTP is not located in an area that will adversely impact marine resources. Thus, the proposed WWTP is not in conflict with the State's objective of promoting the protection, use, and development of marine and coastal resources to assure their sustainability. Furthermore, the proposed WWTP will be a fully contained treatment system. Treated effluent from the system will comply with permit standards (see section 1.6) and be disposed via the HDOH SDWB permitted injection well system (UIC Permit No. UK-2232).

3.1.8 STATE ENVIRONMENTAL POLICY

The State environmental policy was developed to establish a policy that will encourage productive and enjoyable harmony between people and their environment, promote efforts to prevent or eliminate damage to the environment and the biosphere, stimulate the health and welfare of humanity, and enrich the understanding of the ecological systems and natural resources important to the people of Hawaii (HDOH, 1974b). One of the mandates of the policy is to conserve natural resources so that natural resources, such as land, water, mineral, visual, and air, are protected by controlling pollution, by preserving or augmenting natural resources, and by safeguarding the State's natural environmental characteristics.

Although the existing WWTP has had no reported violations and is in generally good condition, deterioration can be seen on areas of the aeration tank and clarification tank. The proposed WWTP will decrease the likelihood of a future release of untreated or partially treated wastewater due to aging system components. The proposed WWTP system will include installing an above ground secondary treatment tank/system including a new sludge holding tank, modification of four of the existing IWs for an increased overflow capacity and new distributional piping to the IWs.

The environmental resources identified in the area and the potential impacts to these resources are addressed in Section 4.

3.1.9 FLOOD AREA HAZARDS

The proposed WWTP is located in a flood hazard area (Zone AE) (Figure 12), it is subject to the provisions of KCC Chapter 15, Article 1 (Floodplain Management), which imposes restrictions on the construction in areas subject to flood hazards in order to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions. The proposed WWTP will comply with the applicable provisions and development standards of KCC, Chapter 15 Article 1. Specific mitigation measures to minimize damage from flood hazards are discussed in Section 4.2.2.

3.2 SOCIAL AND ECONOMIC POLICIES, PLANS, AND CONTROLS

3.2.1 HAWAII STATE PLAN

The Hawaii State Plan, which is set forth in the Hawaii State Planning Act (HPD, 1978), is a comprehensive, long-term plan that identifies the goals, objectives, policies, and priorities for the State. It provides guidelines for growth, development, and the allocation of State resources. The plan contains diverse policies and objectives on topics of State interest, including the population, the economy (e.g., agriculture, the visitor industry), the physical environment (e.g., natural resources, historic resources, quality of the environment), facility systems (e.g., solid and liquid wastes, water, energy), socio-cultural advancement (e.g., housing, health, culture), and sustainability.

The proposed WWTP is consistent with the goals, objectives, policies, and priority guidelines listed in the Hawaii State Plan, and directly supports multiple objectives and policies of the Plan by decreasing the risk of wastewater spills and protecting environmental resources. The most relevant sections of the Hawaii State Plan in relationship to the proposed WWTP include the following: land-based, shoreline, and marine resources (HRS 226-11); land, air, and water quality (HRS 226-13); and facility systems – solid and liquid wastes (HRS 226-15). These sections are described below.

3.2.1.1 Land-based, Shoreline, and Marine Resources

The proposed WWTP is not in conflict with the State's two objectives.

1. Prudent use of Hawaii's land-based, shoreline, and marine resources
2. Effective protection of Hawaii's unique and fragile environmental resources

The proposed WWTP will have no long-term negative impacts on land-based, shoreline, and marine resources. No unique and fragile environmental resources have been identified in the area. The potential impacts to these resources are addressed in Section 4.

3.2.1.2 Scenic assets, Natural beauty, and Multi-Cultural/Historic Resources

The proposed WWTP is not in conflict with the State's objective.

1. Enhancement of Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources.

The proposed WWTP will have no long-term negative impacts on Hawaii's scenic assets, natural beauty, and multi-cultural/historical resources. The proposed WWTP will not be located in an area that will impact scenic views, natural beauty, or multi-cultural or historic resources.

3.2.1.3 Land, Air and Water Quality

The proposed WWTP is not in conflict with the State's objective.

1. Maintenance and pursuit of improved quality in Hawaii's Land, air, and water resources.

2. Greater public awareness and appreciation of Hawaii's environmental resources.

The proposed WWTP will have no long-term negative impacts on Hawaii's land, air, and water resources. The potential impacts to these resources are addressed in Section 4.

3.2.1.4 Facility Systems – Solid and Liquid Wastes

The proposed WWTP is not in conflict with the State's two objectives.

1. Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid waste.
2. Provision of adequate sewerage facilities for physical and economic activities that alleviate problems in housing, employment, mobility, and other areas.

The proposed WWTP will replace the existing wastewater treatment system to provide improved treatment and disposal of solid and liquid waste.

3.2.2 HAWAII STATE LAND USE CONTROLS

Land in the State of Hawaii is divided into the following four classifications: (1) urban, (2) agriculture, (3) rural, and (4) conservation. The Project location is designated as an urban district. The urban district generally includes lands characterized by "city-like" concentrations of people, structures, and services. This district also includes vacant areas for future development. Generally, lot sizes and uses permitted in the district area are established by the respective county through ordinances or rules. The County of Kauai zoning designation for the Project location is *C-G General Commercial*. According to the KCC Comprehensive Zoning Ordinance Chapter 8, the intent of the General Commercial district is uses and services which are frequently required and utilized by residents of all ages and which can be compatibly located in close proximity to residential districts. The proposed WWTP is consistent with the prescribed land use classification and zoning regulations for the area.

3.2.3 KAUAI COUNTY GENERAL PLAN

The County of Kauai General Plan establishes priorities for managing growth and community development of a 20-year planning timeframe (KPD, 2018). It is a comprehensive statement of objectives and policies which sets forth the long-range aspirations of island residents and shapes the strategies and actions needed to achieve them. The General Plan was adopted in 1971, and most recently amended in 2018. It is the first level of a comprehensive planning process that addresses physical, social, economic, and environmental concerns.

The proposed WWTP is consistent with the visions, goals, and policies set by the General Plan by decreasing the risk of wastewater spills and protecting environmental resources. The most relevant section in the Kauai General Plan is Section IV: Critical Infrastructure and is described below.

3.2.3.1 Critical Infrastructure: Wastewater, Septic Systems and Cesspools

The proposed WWTP is not in conflict with the County objective:

1. To preserve and protect our fresh and ocean water resources from wastewater and other pollutants.

The proposed WWTP will replace the existing wastewater treatment system to provide continued treatment and disposal of solid and liquid waste.

3.3 BUILDING, GRADING, FIRE PERMITS

Prior to construction of the proposed WWTP at the Property, the necessary permits will be obtained from the appropriate State of Hawaii and County of Kauai agencies.

HDOH, SDWB:

- *UIC Permit* No. UK-2232 has previously been issued for the installation and operation of the seven existing injection wells.

HDOH, Wastewater Branch:

- Review of *Basis of Design and Engineering Report and Plan Set for Wastewater Treatment Plant Replacement* for the design and construction of the wastewater treatment system.

Kauai Planning Commission

- SMA Use Permit for the construction of the wastewater treatment system. The Project location is within the SMA area, which extends inland from and along the shoreline. It is the most sensitive area of the coastal zone.

County of Kauai Department of Public Works

- Building/Grading Permit for the construction of the wastewater treatment system (includes review by KIUC and Kauai Department of Water)

County of Kauai Fire Department

- Tank Installation Permit for the fuel tank associated with the emergency backup generator.

SECTION 4 PHYSICAL ENVIRONMENT AND POTENTIAL IMPACTS

Wastewater treatment facilities potentially can have negative impacts on the physical environment in which they are constructed and operated and on the surrounding area. One of the principal objectives of an EA is to assess whether such impacts could be significant. The areas of potential concern that have been identified regarding the construction and operation of the proposed WWTP are as follows: (1) land impacts (2) water impacts, (3) biological impacts, (4) air quality impacts, and (5) noise impacts. Potential impacts related to climate change should be included in the (HAR Chapter 11-200.1-13).

4.1 POTENTIAL LAND IMPACTS

4.1.1 EXISTING TOPOGRAPHIC AND GEOLOGICAL CONDITIONS

The Property is located on a relatively flat coastal plain, at a surface elevation of approximately 9 feet above mean seal level [amsl]. There is no significant elevation change across the Property. No unique topographical features are located on the Property.

The Island of Kauai originated as a submerged basaltic shield volcano with a single caldera, the Olokele Caldera, formed from the collapse of the eruptive center of the volcano. The island was built up over time from thousands of thin flows of basaltic lava which would spill out over the rim of the Olokele Caldera. As the volcano emerged from the sea, a second caldera formed from the collapsing of minor eruptive centers on the southeast of the island. Near the end of the period of the of the filling of the major caldera, collapsing of the volcano formed the southwest portion of the island and the Waimea Canyon. After the formation of the Kauai Shield Volcano came a long period of erosion in which waves cut sea cliffs around the island and streams cut canyons as deep as 3000 feet. (Macdonald et. al, 1960).

The principal lithologic unit underlying the Property consists of Holocene and Pleistocene epoch alluvium surficial deposits (Sherrod et al., 2021). These deposits consist of sand and gravel eroded from older Olokele Caldera, Napali formations, and Koloa volcanics alluvium which were deposited at the mouth of the Hanalei River, Waioli Stream, and Hanalei Bay. Over time, the accumulation of the deposits forms large plains that typically form perpendicular to the ocean and along rivers and streams.

Shallow subsurface soil underlying the Property are classified as *Mokuleia Clay* on a 0 to 2 percent slope. *Mokuleia Clay* is typically found on coastal plains up to 16 inches below ground surface [bgs] and is typically formed from alluvium deposited over coral sand. The soil is characterized as being poorly drained and having negligible runoff (WSS, 2023).

The Land Study Bureau [LSB] of the University of Hawaii prepared an inventory and evaluation of the state's land resourced during the 1960s and 1970s. The Bureau grouped undeveloped lands in the state into homogeneous units of land types; described their condition and environment; rated the land on its overall quality in terms of agricultural productivity; appraised its performance for the selected alternative crops and delineated the various land types and grouping based on the soil properties and productive capabilities. From these criteria, overall ratings of A

through E were created; with A having the overall highest soil productivity rating and E having the lowest (Murabayashi et. al, 1967). The Property was omitted from the LSB study since it was already developed at the time of the study. Therefore, The Property does not contain any LSB rated soils.

4.1.2 POTENTIAL TOPOGRAPHIC AND GEOLOGICAL IMPACTS AND MITIGATION

The proposed WWTP will utilize the area of the existing WWTP and the existing injection well and extend approximately 100 square feet to the south of the current footprint. The only areas of subsurface excavation will be for re-grading of the existing footprint for the installation of a concrete slab for the new WWTP tank, for piping to existing injection wells, and the modification of two existing injection wells. The area of disturbance is roughly a 12-foot by 40-foot area, or approximately 480 square feet. Soil disturbed during excavation and grading will be reused on site. The Project does not include the offsite export of soil.

Less than significant short-term impacts to ground topography and soils are anticipated from the proposed WWTP. Minor short-term excavation and grading will be required during construction of the proposed WWTP. *County of Kauai Stormwater Construction Best Management Practice Manual* will be followed during construction, in addition to the provisions of the grading permit that will need to be obtained. Adherence to these regulatory guidelines, which would include protecting exposed soils from runoff using filter socks, silt and dust fences, tarping soil stockpiles, and other appropriate BMPs, would mitigate potential impacts of soil erosion and fugitive dust during grading or excavation.

Future operation of the proposed WWTP will mitigate future potential spills of wastewater to the soil of the Property. There would be no long-term adverse impacts to site soils, topography, or geological resources from the proposed WWTP upgrades.

4.1.3 EXISTING STORM WATER CONDITIONS

The area of the proposed WWTP is where the existing system is currently in place. The current space is in an enclosed area on gravel, with a paved parking lot on the south and east side. There are no storm drains in the parking lot. Storm water runs off the Property via surface sheet flow to the north towards a gravel parking lot.

4.1.4 POTENTIAL STORM WATER IMPACTS AND MITIGATION

Less than significant short-term impacts from storm water runoff are anticipated during construction. BMPs will be used during construction of the proposed WWTP to prevent soil generated by construction activities from discharging beyond the Project location as storm water runoff. Upon completion of construction activities, the area surrounding the WWTP will be restored to its previous condition.

There will be no impact to long-term storm water runoff quantities at the Property or the surrounding area compared to existing conditions. All areas disturbed during construction will be covered with gravel or concrete in accordance with the building permits. The Project will not

increase impervious surfaces, except for the addition of a concrete slab for WWTP tank. There will be no changes to existing surface water drainage patterns.

4.2 POTENTIAL WATER IMPACTS

Waters of potential concern in the area of the Property include (1) shallow groundwater and (2) deep, basal, drinking water. Of these, shallow groundwater is the principal concern.

4.2.1 EXISTING HYDROGEOLOGICAL CONDITIONS

Groundwater in Hawaii exists in two principal types of aquifers. The first and most important type, in terms of drinking water resources, is the basal aquifer. The basal aquifer exists as a lens of fresh water floating on and displacing seawater within the pore spaces, fractures, and voids of the basalt that forms the underlying mass of each Hawaiian island. In parts of Kauai, including the area of the Property, groundwater in the basal aquifer is confined by the overlying caprock and is under pressure. Water that flows freely to the surface from wells that tap the basal aquifer is referred to as artesian.

The second type of aquifer is the caprock aquifer, which consists of various kinds of unconfined and semi-confined groundwater. The nearly impermeable sediments that form the caprock separate the caprock aquifer from the basal aquifer. The impermeable nature of these materials and the artesian nature of the basal aquifer severely restrict the downward migration of groundwater from the upper caprock aquifer.

There are two aquifers in the area of the Property. Both aquifers are part of the *Hanalei aquifer system* of the *Hanalei Aquifer sector* (Mink and Lau, 1992). The upper aquifer is a basal unconfined aquifer that resides in sedimentary deposits; it has potential use, is ecologically important, and has low salinity. It has a high vulnerability to contamination and is considered irreplaceable. The deeper aquifer is a basal unconfined aquifer residing in dike formations and has potential use as a fresh drinking water source. The aquifer is considered moderately vulnerable to contamination and is irreplaceable.

Based on a review of well logs for deeper wells installed nearby, the caprock extends to approximately 160 feet bgs (UH, 2023). Therefore, it is assumed that the basal drinking water aquifer in the area of the Property occurs at a depth of 160 feet or greater. The direction of groundwater flow in the area is likely northwest towards the Pacific Ocean.

There are 6 drinking water wells within 1 mile of the site. The closest drinking water well is approximately 0.40 miles northeast and cross gradient of the Property, and there are no water wells of any kind downgradient (Figure 8).

4.2.2 POTENTIAL HYDROGEOLOGICAL IMPACTS AND MITIGATIONS

The proposed WWTP is anticipated to have no adverse impacts on shallow groundwater or the basal (drinking water) aquifer. The effluent that will be disposed in the injection wells must meet the requirements of HAR Chapter 11-62, “Wastewater Systems” (HDOH, 2016).

The proposed WWTP will not cause an increase in runoff quantities. The proposed system, like the existing system, will be fully contained before the release of treated effluent to the UIC permit standards. The expansion of four of the seven existing IWs will increase the capacity of the system in case of an overflow event, however this upgrade will not facilitate any further development or daily use. Construction and operation of the proposed WWTP will be conducted in accordance with the State’s water quality standards (HAR Chapter 11-54) and the County’s Floodplain management standards (KCC Chapter 15, Article 1) (KPD, 1987). During construction, barriers (e.g., sediment fences, silt screens, bags, or environmental filter socks) will be used as needed to limit sediment and land-based sources of pollution from discharging into nearby inland waters. Operation of the proposed WWTP will mitigate future potential spills of wastewater that could possibly reach the nearby inland waters.

4.3 POTENTIAL BIOLOGICAL IMPACTS

There are numerous recognized ecosystems in Hawaii. Because so many Hawaiian species are highly specialized, populations are small and many of Hawaii’s plants and animals are listed as threatened or endangered species by the USFWS. For the purposes of this EA, the following three biological communities of potential concern in the area of the Property have been identified: (1) floral, (2) faunal, and (3) marine.

4.3.1 EXISTING BIOLOGICAL CONDITION

4.3.1.1 Floral (Plant Communities)

The Project site is situated in a general commercial area with a surrounding residential area of Hanalei. The Property was grubbed of the native trees in the mid-1960s. There are no native rare or endangered floral species found on the Property; Therefore, the proposed WWTP will not adversely affect endangered or threatened plant species. The State of Hawaii Geographic Information System [GIS] “threatened and endangered plants map” and “critical habitat map” show little to no threatened or endangered species are found within the Property boundaries. (HPD, 2022). The USFWS Critical Habitat for Threatened and Endangered Species GIS Online Map shows that no critical habitats are present at or surrounding the Property (USFWS, 2022a). A review of the USFWS Wetlands Inventory Mapper indicates that a Freshwater Forested/shrub Wetland is located to the north of the Property and a Freshwater Emergent Wetland is located to the southeast of the Property (USFWS, 2020b). As such, plants associated with wetlands may be present in the vicinity of the Property.

Based on a review of the United States Department of Agriculture Natural Resources Conservation Services soil map and soil description for where the Project is located; the soil type present is *Mokuleia Clay* on 0 to 2 percent slope and has negligible run-off (WSS, 2023). *Mokuleia*

Clay is considered an important farmland soil and can be used for used for taro, pasture, sugarcane, and vegetables.

4.3.1.2 Fauna (Animal Communities)

Wildlife in the area of the Property is limited to mammals and birds which have adapted to the urban environment. The State of Hawaii GIS “Kauai critical habitat – Ecosystem” map shows no Federal or State listed candidate for threatened or endangered animal species currently with the Property boundaries. (HPD, 2022b).

According to the USFWS’ Information for Planning and Consultation tool, the USFWS noted federal data indicate a federally endangered Hawaiian Hoary Bat (*Lasiurus cineres semotus*), Band-rumped Storm-petrel (*Oceanodroma castro*), Hawaiian Duck (*Anas wyvilliana*), Hawaiian Common Gallinule, (*Gallinula galeata sandvicensis*), Hawaiian Coot (*Fulica americana alai*), Hawaiian Petrel (*Pterodroma Sandwichensis*), Hawaiian Stilt (*Himantopus mexicanus knudseni*), and a threatened Newell’s Townsend’s Shearwater (*Puffinus auricularis newlli*) and Hawaiian Goose (*Branta sandvicensis*) are around the area of the proposed Project (USFWS, 2023a). However, there is no known habitat for these species on the Property (USFWS, 2023).

4.3.1.3 Marine (Ocean Floral and Faunal Communities)

The Property is located approximately 0.25 mile from the Pacific Ocean; therefore, no threatened or endangered marine species are present in the vicinity of the Property.

4.3.2 POTENTIAL BIOLOGICAL IMPACTS AND MITIGATION

There would be a less than significant impact to biological resources from the proposed WWTP. None of the plants within the Property are known to be federal or State threatened or endangered of candidate species, Since the Property is developed and mostly paved of covered by buildings, there is no known habitat for the Hawaiian Hoary Bat or protected seabirds. The following mitigation measures will be implemented to minimize potential impacts to the biological resources:

1. Construction activities will be limited to daylight hours to avoid the use of construction work lights which may attract or disorient Hawaiian Hoary Bats or migrating seabirds. All exterior lighting associated with the Project will be shielded. These mitigation measures will be implemented to avoid potential impacts to protected or endangered species.
2. To reduce the possibility of spreading invasive species, pathogens, or pests, all equipment, materials, and personnel should be cleaned of excess soil and debris and the movement of plants or soil material between worksites should be avoided.
3. In order to reduce the presence of bird predators at the Property, feral cats will be removed from the Property, bait stations for rodents and mongoose will be installed, and covered trash receptacles should be used.
4. To reduce the possibility of spreading invasive species pathogens, or pests, all equipment, materials, and personnel should remove excess soil and debris, and the movement of plants or soil material between worksites should be avoided.

With these mitigation measures in place, the construction of the proposed WWTP is expected to result in no significant adverse impacts to existing plant species or native wildlife species or their habitat.

During the operation of the proposed WWTP, the treated wastewater will be discharged to the onsite injection wells disposal system, the primary disposal wells are located approximately 370 meters from the shoreline, and nutrients in the effluent are unlikely to mix with seawaters which could impact marine wildlife. Furthermore, the proposed WWTP is anticipated to significantly reduce nitrogen and phosphorus levels in the effluent. Due to the oxygen supplied for the biological process within the treatment system, complete nitrification is anticipated based on the system design. With proper operation of the treatment system, no significant impact to marine wildlife species is anticipated. Based on communication with the HDOH CWB, a NPDES permit will not be required for the disposal of treated wastewater via the injection wells.

4.4 POTENTIAL AIR QUALITY IMPACTS

Air pollution can be caused by natural sources; however, many different man-made activities can contribute. To determine if emissions generated at the Property would adversely affect air quality conditions, potential air quality impacts were evaluated in accordance with national and state air quality standards.

4.4.1 EXISTING AIR QUALITY CONDITIONS

The HDOH Clean Air Branch [CAB] has established the State Ambient Air Quality Standards [SAAQS]. The HDOH CAB regularly samples ambient air quality at monitoring stations throughout the State, and annually publishes this information, On Kauai, there is one monitoring station. The station monitors multiple parameters and is located in Nawiliwili. The station measures sulfur dioxide, nitrogen dioxide, and particulate matter.

Air quality in the State of Hawaii continues to be one of the best in the nation, and criteria pollutant levels remain well below the SAAQS. According to the *Annual Summary 2021 Hawaii Air Quality Data*, air quality monitoring data compiled by the HDOH indicates that the established air quality standards for all monitored parameters are consistently met throughout the State and on Kauai (HDOH, 2022).

Air quality in the vicinity of the Property is primarily affected by emissions from motor vehicles, residential sources, and agricultural sources. Air quality standards in the area generally meet the State air quality standards because of prevalent trade winds and the lack of any major stationary pollutant emission source.

4.4.2 POTENTIAL AIR QUALITY IMPACTS AND MITIGATIONS

Impacts on the air quality are anticipated to be less than significant and short-term. Construction of the proposed WWTP will require machinery that may generate dust, and emissions from the construction equipment and support vehicles may impact the air quality in the immediate area.

The prevailing trade winds from the northeast are expected to disperse emissions and prevent elevated emission levels.

The short-term effects on air quality during the construction of the proposed WWTP will be mitigated by compliance with HDOH air pollution rules. Fugitive dust emissions will be controlled by implementing BMPs such as watering active work areas, maintaining cleanliness on work area egress locations, and covering open bodied trucks, and limiting work area to be disturbed at any given time.

Long-term operation and maintenance of the WWTP is not expected to have any adverse impacts on air quality. The pumps and blowers associated with the WWTP are electric powered and will not discharge air pollutants.

4.5 POTENTIAL NOISE IMPACTS

Noise pollution can result from construction activities and heavy equipment operations. To determine if noise generated at the Property would adversely affect noise quality in the area, potential noise impacts were evaluated in accordance with state noise control standards of HAR 11-46 (HDOH, 1996).

The maximum permissible sound level for areas zoned as general commercial is 60 A-weighted decibels [dBA] during the daytime (7 am to 10 pm) and 50 dBA during the nighttime (10 pm to 7 am) (HDOH, 1996). The maximum permissible sound level can be exceeded for short periods of time, but no more than ten percent of the time within any twenty-minute period. The maximum permissible sound level for impulsive noises is 10 dBA above the maximum permissible sound level. Backup alarm devices on vehicles are exempt from the maximum permissible sound levels, where such devices are required by the Occupational Safety and Health Administration.

4.5.1 EXISTING NOISE CONDITIONS

Currently, noise levels in the vicinity of the Property are moderate as land use in area are primarily commercial in nature. Sources of ambient noise are vehicular traffic along Kuhio Highway and activity associated with the Ching Young Village Shopping Center and its patrons.

4.5.2 POTENTIAL NOISE IMPACTS AND MITIGATION

There will be less than significant short-term intermittent noise impacts generated during construction of the proposed WWTP. However, noise levels are not expected to adversely affect residents at or near the Project location. All work is anticipated to be done during the daytime hours, between 7:00 am and 6:00 pm. Construction activities must comply with the provisions of HAR Chapter 11-46, "Community Noise Control" (HDOH, 1996). The contractor will be required to obtain a noise permit if the noise levels from construction activities are expected to exceed 60 dBA.

Blowers and pumps will be utilized during long-term operation of the WWTP and may generate low levels of noise. However, the noise from this system is not anticipated to exceed the maximum permissible sound levels. The noise generating equipment (i.e., blowers and pumps) will be

housed in a utility enclosure and will include the new emergency generator which operates the blowers. Therefore, there would be less than significant long-term noise impacts from the proposed WWTP.

Noise levels associated with the operation of the emergency generator is exempt from the rules of HAR Chapter 11-46.

4.6 CLIMATOLOGICAL CONDITIONS AND IMPACTS

4.6.1 EXISTING CLIMATOLOGICAL CONDITIONS

Climatological conditions in the area of the Property consist of warm to moderate temperatures and moderate rainfall. The Property is on the north shore of Kauai, which has a prevailing northeasterly trade wind. The average annual precipitation in the area is approximately 82 inches, occurring year mainly between November and April (Giambelluca et al. 2013). The evapotranspiration rate is approximately 27 inches (Giambelluca et al., 2014). Average temperatures range from the low to mid 70s (degrees Fahrenheit) (Giambelluca et al, 2014).

4.6.2 POTENTIAL IMPACTS RELATED TO CLIMATE CHANGE

The potential impacts of climate change have become a significant concern on Hawaii's infrastructure and natural environment. As a reflection of this concern, the County of Kauai's Resiliency Team which includes representatives from the KPD, Kauai Emergency Management Agency, the Mayor's Office, and the University of Hawai'i Sea Grant College Program, is currently developing the Kauai Climate Adaptation Plan [KCAP] to ensure our communities continue to thrive as the climate changes. The KCAP will address future hazards that may be exacerbated by climate change such as sea level rise, temperature rise, increased precipitation, flooding, and storms. The KCAP will draw upon community and scientific knowledge to provide framework for County climate change adaptation actions (KPD, 2023). The Climate Change Adaptation Policy Guidelines of the Hawaii State Planning Act (HRS 226-109), support planning and preparing for future disruptions and dislocations due to climate change.

The principal concern identified which poses a potential hazard to the Property is changing weather patterns in the Pacific Ocean that could result in localized increased precipitation severity and flooding. Although not directly related to climate change, tsunami and hurricane hazards and impacts are included below.

4.6.2.1 Flooding and Tsunami Hazards

According to the State GIS flood hazard zones map, the Property is located in flood hazard area Zone AE (Figure 12), which is defined as an area subject to inundation by the 1% annual chance flood event, or the 100-year flood, in any given year which exceeds the defined base flood elevation [BFE] (HPD, 2021). The proposed WWTP will be located in Zone AE with a BFE of 10 feet amsl.

Tsunamis and inundations of the low-lying coastal areas are natural phenomena that occur infrequently in Hawaii. The location of the islands in the Pacific Ocean exposes them to waves

generated from tectonic activity from the edges of the Pacific Plate, also known as the Pacific Ring of Fire. The Property is located in the County's Tsunami Evacuation Zone maps.

According to USACE sea level rise predictions tool, there is potential for a 0.81 to 4.12-foot range of sea level rise by 2060 and a 1.04 to 6.94-foot range of sea level rise by 2080 at the Property (Figure, 10) (NOAA, 2017). The Property is not currently at risk of storm surges at Category 1 to Category 4 hurricane conditions according to the NOAA National Storm Surge Hazards Map (Figure 11) (NOAA, 2020). The increase in sea level elevation and the potential for increase in monsoonal weather patterns brought by climate change will likely increase the chance of inundation by floodwaters at the Property.

4.6.2.2 Flood and Tsunami Impacts and Mitigation.

The proposed WWTP will be designed to withstand tsunami inundations as well as floods from inland. The proposed WWTP will be designed, located, and constructed to minimize or eliminate flood damage, impairment, and/or contamination during and subsequent to flooding by the regulatory flood. The aboveground tank housing the treatment system below the BFE will be constructed of epoxy-coated steel and will be watertight with walls impermeable to the passage of water. In addition, structural components will have the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy due to the potential flooding. The pumps and blower panels will be protected from potential flooding by having them installed in weatherproof housing. By incorporating these design features there would be less than significant impacts from flooding, tsunami, and sea level rise. The proposed WWTP improvements would result in beneficial impacts compared to existing conditions since the WWTP components would be more resilient to flood waters from land and sea.

Currently, the impacts of minor flooding events are minimal; however, the impacts of a major tsunami at the Property could be significant. The chance of impacts will increase with the increase in sea level rise and climate change. The combination of sea level rise compounded by increased precipitation associated with climate change will increase the chances of major flooding events at the Property. Major flooding could cause an overflow of the effluent disposal system (i.e., injection wells), which would result in a potential spill of treated wastewater to the Ching Young Village parking lot, Kuhio Highway, and/or adjacent waters. To reduce the threat of flooding or sea level rise impacts to the injection wells, the following mitigation measures can be implemented as necessitated:

1. The effluent can be pumped directly to a temporary holding tank or removed using a pumping service.
2. Temporary or permanent flood barriers can be added around the wells.

These mitigation measures would reduce the flooding impacts to the injection wells to less than significant.

By the year 2080, if the WWTP is still in operation, measures will be taken to protect the WWTP from rising sea water, or the WWTP will be decommissioned or relocated to a new location inland away from the coastline. Conditions of the UIC permit require annual inspection, testing, and

monitoring of the injection wells to evaluate their performance and prevent injection well failures. These observations will be used to determine if sea level rise is compromising the performance of the injection well system.

If sea level rise impacts the performance of the treatment system components or the injection well system, all applicable regulations in place at the time will be followed. If it is determined that the WWTP should be decommissioned, it will be decommissioned in accordance with HDOH Wastewater Branch regulations.

SECTION 5 SOCIAL ENVIRONMENT AND POTENTIAL IMPACTS

5.1 LAND USE

5.1.1 EXISTING LAND USE

The Property and surrounding land are zoned as an *Urban* district under State Land Use Designations (Figure 3). The County of Kauai CZO designates the Property as *C-G General Commercial* (Figure 4).

The Property is occupied by the Ching Young Village Shopping Center consisting of several retail stores, restaurants, and office space. The remaining areas of the Property are in use as parking spaces. The area surrounding the Property is occupied by open space directly north, residential properties to the northeast, the Hanalei Post office and residential properties to the west, and Aku Street and commercial properties to the east. Agricultural land and additional commercial properties are located across Kuhio Highway to the south (Figure 6).

The general area around the Property is developed with single-family residences with a density of approximately 4 homes per acre. Based on available planning documents, the Property and surrounding areas will continue to be used for residential, commercial, and agricultural purposes for the foreseeable future.

5.1.2 POTENTIAL LAND USE ISSUES

The Property and surrounding areas are zoned for commercial, residential, agricultural, and preservation uses, and its current and future use are consistent with the types of land use at surrounding properties. The Property has not had a significant impact on existing land use in the area. The proposed WWTP is not expected to have any impact on land use. The proposed WWTP will be in a fenced area within the Property and will not affect any of the Property's parking stalls.

5.2 SOCIAL AND ECONOMIC ISSUES

5.2.1 EXISTING SOCIAL AND ECONOMIC CONDITIONS

The Project is located in Hanalei, Kauai within census tract 401.04. According to the 2020 United States Decennial Census, Hanalei had a population of 444, making it approximately 0.6% of the total population of Kauai County. The population in Hanalei has an average age that is slightly younger than the overall age of Kauai population. The racial demographics of the Hanalei population is comprised primarily of Caucasians, Asians, and Native Hawaiians. Approximately 63% of the Hanalei population are less than high school graduates. The median income in 2020 for the typical Hanalei household was \$88,750 and approximately 23.4% of individuals over the age of 18 are below the poverty level. The primary industry employing the population of Hanalei is in the arts, entertainment, recreation, food service and accommodations industry, with construction industry employing the second most individuals (USCB, 2020).

5.2.2 POTENTIAL SOCIAL AND ECONOMIC IMPACTS

The proposed WWTP is anticipated to have no adverse impacts to socio-economic resources. The proposed WWTP will not result in an increase of dwelling units or the population of the Hanalei area. Construction of the WWTP will generate short-term economic benefits through expenditures for construction materials and employment of workers.

5.3 HISTORIC, ARCHEOLOGICAL, AND CULTURAL RESOURCES

5.3.1 EXISTING HISTORIC, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

According to the Hawaii Cultural Resource Information System database, there are no records of historical properties or archaeological assessments on or near the Property (SHPD, 2022).

Consultation with the State of Hawaii Historic Preservation Department was initiated to determine if historic, archaeological, or cultural resources would be impacted by the proposed WWTP. Based on correspondence with the SHPD Kauai Archeologist and available records. No historic, archaeological, or cultural resources exist on the site or any of the immediately adjacent properties.

5.3.2 POTENTIAL IMPACTS TO HISTORIC, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

The proposed WWTP is not expected to result in adverse impacts to historical, archaeological, or cultural resources since the Project is being constructed at the location of the existing wastewater treatment system (Figures 6 and 7). The new WWTP system components will all be constructed above ground, and the existing wet well/lift station and effluent disposal system (i.e., injection wells) are already in an area that has had extensive ground disturbance. The excavation activities to install concrete slabs are not anticipated to disturb any archaeological or cultural features. The existing wastewater treatment system will be demolished and removed, but this is an area that was previously disturbed when the system was installed.

5.4 VISUAL AND AESTHETIC APPEAL

5.4.1 EXISTING VISUAL AND AESTHETIC APPEAL

The Ching Young Village is located in a general commercial area surrounded by neighborhood commercial properties, residential homes and agricultural lands. The existing WWTP is located in a parking lot and entirely within a concrete-walled enclosure with a chain-linked access gate and is not visible to the general public. There is no scenic vista or open view to the ocean due to the surrounding trees and buildings.

5.4.2 POTENTIAL IMPACTS TO THE VISUAL AND AESTHETIC APPEAL

The proposed WWTP is designed to have a height of approximately 12 feet above the level of the parking lot. The current height limitations for areas zoned as *C-G General Commercial*, including the Property, is 50 feet measured from the ground level (KPD, 2023). The WWTP is within the C-G zone height limitation.

The dimensions of the proposed WWTP are approximately 11 feet 9 inches by 40 feet long. The WWTP will be constructed within the existing 8-foot-high concrete-walled enclosure to screen the WWTP public view. A new modular utility enclosure will be installed within the existing footprint. The visual and aesthetic appeal of the area will be maintained by locating the WWTP at the location of the existing WWTP footprint and retaining the existing 8-foot-high concrete enclosure. Therefore, the proposed WWTP improvements will not result in significant impacts to visual and aesthetic resources.

5.5 RECREATIONAL ACTIVITIES AND AREA

5.5.1 EXISTING RECREATIONAL ACTIVITIES AND AREAS

The Ching Young Village Shopping Center is utilized as a recreational area for tourism as well as the Kauai County population. There is public beach access located approximately 600 feet away from the Property. Hanalei Pavilion Beach Park is located approximately 0.25 miles north of the Property.

5.5.2 POTENTIAL IMPACTS TO THE RECREATIONAL ACTIVITIES

The proposed WWTP Project will maintain the area as an area for recreational use for tourism and the Kauai County population. Due to the presence of the surrounding buildings and the distance to the public beaches and beach parks, the proposed WWTP will have no adverse impact on the current recreational activities during the construction period, or during the long-term operation of the WWTP.

SECTION 6 INFRASTRUCTURE AND POTENTIAL IMPACTS

The proposed project has the potential to have impact on the following two public services: (1) transportation and (2) utilities. Due to the location of the proposed WWTP and the nature of its operations, it is not expected that other public services will be affected.

6.1 TRAFFIC AND ROADS

6.1.1 EXISTING TRANSPORTATION INFRASTRUCTURE

Kuhio Highway is the main roadway serving the commercial area of Hanalei. There are three driveways onto the Property, one from Kuhio Highway on the western portion of the Property; one on the eastern portion of the Property; and one driveway from Aku street on the northeastern portion of the Property. The Primary vehicle access to the Property is from Kuhio Highway. The WWTP is located on the northwestern corner of the Property and would be accessed by the western driveway from Kuhio Highway (Figures 6 and 7).

Bus service to the Property is provided by the Kauai Bus Route 400 which runs along Kuhio Highway. Generally, smooth traffic is a characteristic along these routes. Traffic is typically busiest during weekday commuter periods and weekend afternoons with main traffic areas around the Property.

6.1.2 POTENTIAL IMPACTS TO TRAFFIC AND ROADS MITIGATION METHODS

All construction activities associated with the proposed WWTP will take place within the Property boundaries. No work will be performed within the State Right-of-Way. Construction activities will not alter public roadways or affect bus service or bike/pedestrian access to the State Right-of-Way. There will be no modifications to site access/egress on Kuhio Highway or Aku Street. While the Project is not expected to have significant traffic impacts, traffic on and adjacent to the Property may be impacted on a short-term basis during transportation of construction equipment and supplies to the Project site. Construction vehicles will add to the traffic on the roadways during these short periods. The following mitigation measures are recommended for optimal traffic conditions during construction:

- Construction activities and construction materials should be located and stored away from vehicular traffic. Sight lines for drivers on the roadway should be carefully maintained.
- Trucks delivering construction materials should be scheduled on weekdays during times of non-peak commuter periods (8:30 AM to 3:30 PM).

With these mitigation measures in place, the Project would result in less than significant impacts to traffic and roads.

6.2 UTILITIES

6.2.1 EXISTING UTILITIES IN THE AREA

6.2.1.1 *Electrical Supply*

Electrical power is provided to the Property by KIUC overhead service lines along the Kuhio Highway and a KIUC-owned transformer located on the west side of the Property. The electrical components of the proposed WWTP will be connected to the onsite 208 volts 3-phase electrical lines, through a branch circuit from the Ching Young Village building circuit. In the event of a commercial power outage, the new emergency generator will be linked to an automatic transfer switch so that essential loads will automatically transfer to emergency power.

6.2.1.2 *Water Supply*

Potable water is provided to the Property by the Kauai County Water Department water line on Kuhio Highway. Daily water usage consists of commercial uses from the shopping center's various businesses and their visitors, and landscape irrigation. Fire suppression water supply is also provided on the Property.

6.2.2 POTENTIAL IMPACTS TO UTILITIES IN THE AREA

The proposed WWTP is not anticipated to require any offsite improvements. Utility services, such as potable water and electricity, to the surrounding area will not be affected. However, onsite utilities may be affected during construction activities. Additional electricity needed for operation of the proposed WWTP will be supplied by the onsite transformer. Therefore, there would be short-term less than significant impacts to utilities from the proposed WWTP.

SECTION 7 DETERMINATION

Based on the analysis of information in this EA, it has been determined that the proposed Ching Young Village WWTP Project will not have significant negative impacts to the natural, built, or social environment. Therefore, it is anticipated that a FONSI will be issued and an EIS will not be required.

7.1 FINDINGS AND REASONS SUPPORTING THE DETERMINATION

All phases and expected consequences of the proposed WWTP have been evaluated, including potential primary, secondary, short-term, long-term, and cumulative impacts. Table 7.1 summarizes the significance criteria and the evaluation of the potential effects of the Project. After an evaluation of the proposed projects potential impacts and feasible alternatives, it is recommended to replace the existing WWTP with an upgraded system to reduce the overall risk of a future release due to the age of the existing system's components.

It is concluded that the proposed WWTP does not meet any of the thirteen significance criteria established by the State of Hawaii under HRS 343 (HAR Chapter 11-200.1-13). By not meeting these criteria, it is appropriate that the proposed WWTP be issued a FONSI and that an EIS not be required.

**Table 7.1: Evaluation of HAR Chapter 11-200.1 - 13 Significant Criteria
Ching Young Village WWTP
Final Environmental Assessment**

No.	Significance Criterion	Yes	No	Reason for Determination
1	Irrevocably commits a natural, cultural, or historic resource?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not expected to irrevocably commit any natural, cultural, or historic resource. The proposed WWTP will be installed in an area that has been previously disturbed by commercial development and is currently the location of the existing WWTP. There are no known significant cultural or historic resources in the Project area and recommendations by the SHPD will be followed to protect cultural or historic resources.
2	Curtails the range of beneficial uses of the environment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project will not permanently curtail the beneficial uses of the environment. The proposed WWTP conforms to the land use designation for the Property and will be located within the existing property boundary of the Ching Young Village Shopping Center.
3	Conflicts with the State's environmental policies or long-term environmental goals established by law?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project will be in conformance with the State's environmental policies and goals established by law. The proposed WWTP will provide better treatment of Ching Young Village Shopping Center's wastewater and will accommodate present day flows. This is anticipated to reduce the risk of future wastewater spills.
4	Has a substantial adverse effect on the economic welfare, social welfare, or cultural practices of the community and State?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not anticipated to have any adverse effects on the economic and social welfare or cultural practices of the community or state. Rather, it will benefit the residents of Hanalei and visitors of Ching Young Village Shopping Center by providing an improved wastewater treatment system.
5	Has a substantial adverse effect on public health?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not anticipated to have any adverse effects on public health. Rather, it will have a positive impact on public health by improving treatment of wastewater and reducing the risk of future wastewater spills.

No.	Significance Criterion	Yes	No	Reason for Determination
6	Involves adverse secondary impacts, such as population changes or effects on public facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not anticipated to result in adverse secondary impacts. The Project is designed only to accommodate present day wastewater flows at the Ching Young Village Shopping Center, and to reduce the risk of future wastewater spills.
7	Involves a substantial degradation of environmental quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not anticipated to degrade environmental quality; it is anticipated to protect environmental quality by providing upgraded wastewater treatment. The Project is intended to replace the existing wastewater treatment system to accommodate present day flows to reduce the risk of future wastewater spills.
8	Is individually limited but cumulatively has substantial adverse effect upon the environment or involves a commitment for larger actions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not anticipated to result in a significant cumulative negative impact on the environment. The Project site has already been developed and any adverse impacts related to the proposed WWTP will primarily be limited within the property boundary. Due to the rural nature of the general area, other significant development projects are not anticipated. Therefore, the incremental effects of the proposed WWTP combined with the effects of other past, present, and reasonably foreseeable future actions are not cumulatively considerable. The Project does not involve a commitment to larger actions. In fact, it will replace Ching Young Village Shopping Center's existing wastewater treatment system, which will help reduce the need for additional actions.
9	Has a substantial adverse effect on a rare, threatened, or endangered species, or its habitat?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not anticipated to adversely affect any rare, threatened, or endangered species or habitat. There are no known significant biological resources or habitats in the Project area.
10	Has a substantial adverse effect on air or water quality or ambient noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not anticipated to adversely affect long term air quality, water quality, or ambient noise levels. The Project may temporarily affect air, water, or noise quality during construction, but BMPs will be implemented to minimize any impacts.

No.	Significance Criterion	Yes	No	Reason for Determination
11	Has a substantial adverse effect on or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, sea level rise exposure area, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is located within the SMA and appropriate permits will be obtained for the SMA. The proposed WWTP is located within the 100-year flood hazard area and in the County's Tsunami inundation evacuation zone. The WWTP will be designed, located, and constructed to minimize or eliminate flood damage, impairment, and/or contamination during and subsequent to flooding by the regulatory flood. In addition, structural components will have the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy due to the regulatory flood or a tsunami. The Project is not located within the sea level rise exposure area.
12	Has a substantial adverse effect on scenic vistas and view planes, during day or night, identified in county or state plans or studies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project is not located along the coastline, the dimensions of the proposed WWTP are approximately 12 feet wide by 40 feet long, with a height of approximately 12 feet above the level of the parking lot. Fencing or a wall will be used around the WWTP to maintain the visual and aesthetic appeal of the area.
13	Requires substantial energy consumption or emits substantial greenhouse gases?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	The Project will not require substantial energy consumption. A slight increase in energy use will result from the proposed WWTP and will be accommodated by the existing KIUC power supply on the Property. The Project will not emit substantial greenhouse gases.

SECTION 8 REFERENCES

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FIGURES

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LEGEND
CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022

NOTES
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SOURCES
<https://www.gohawaii.com/islands/kauai/travel-info/maps>
<https://apps.nationalmap.gov/downloader/#/maps>

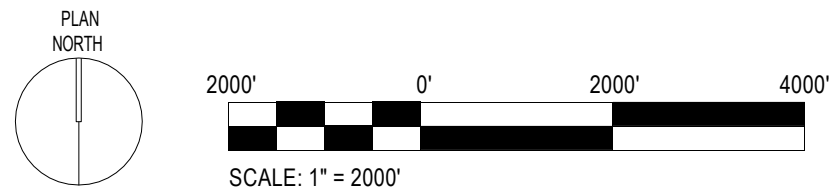
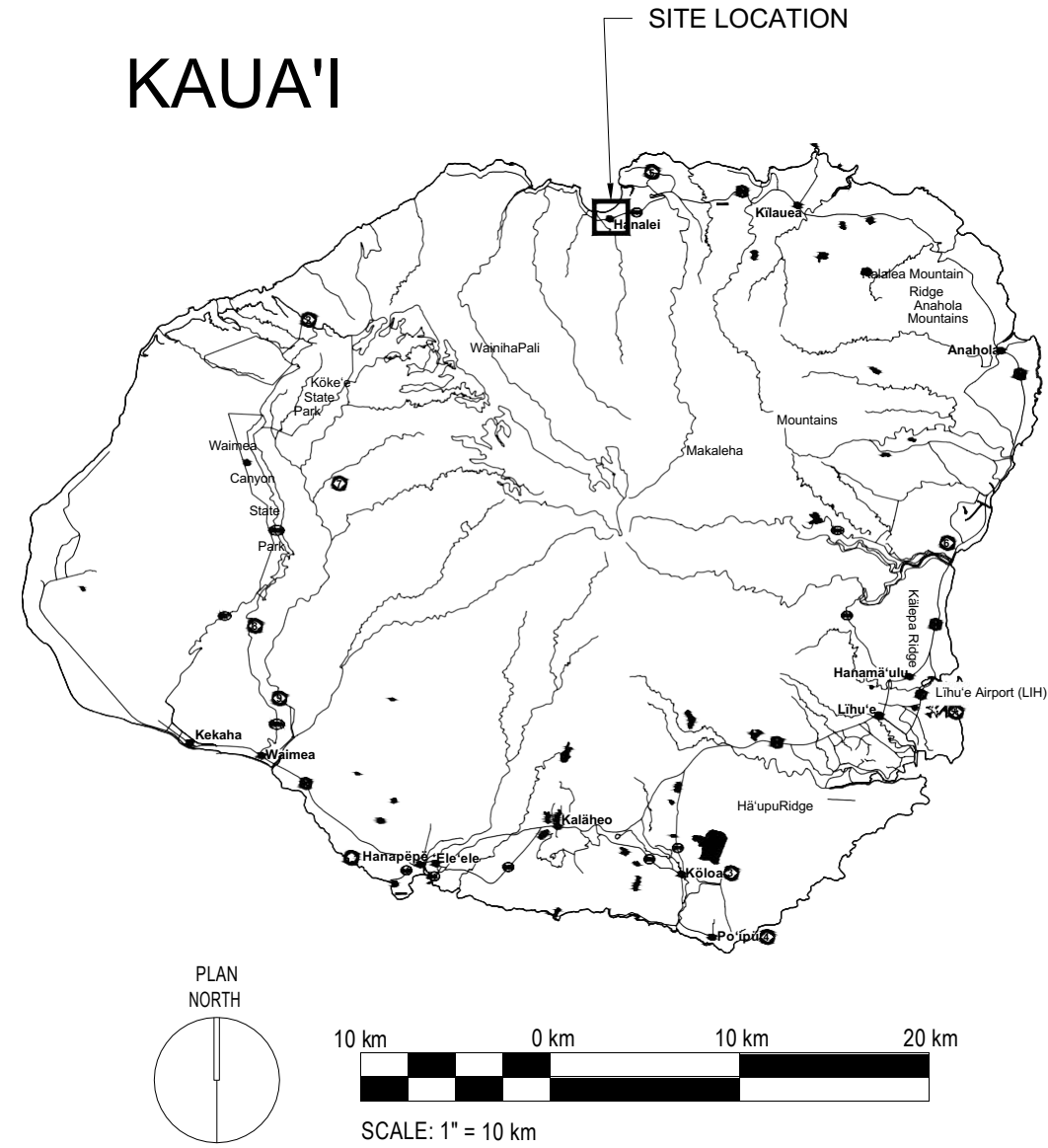
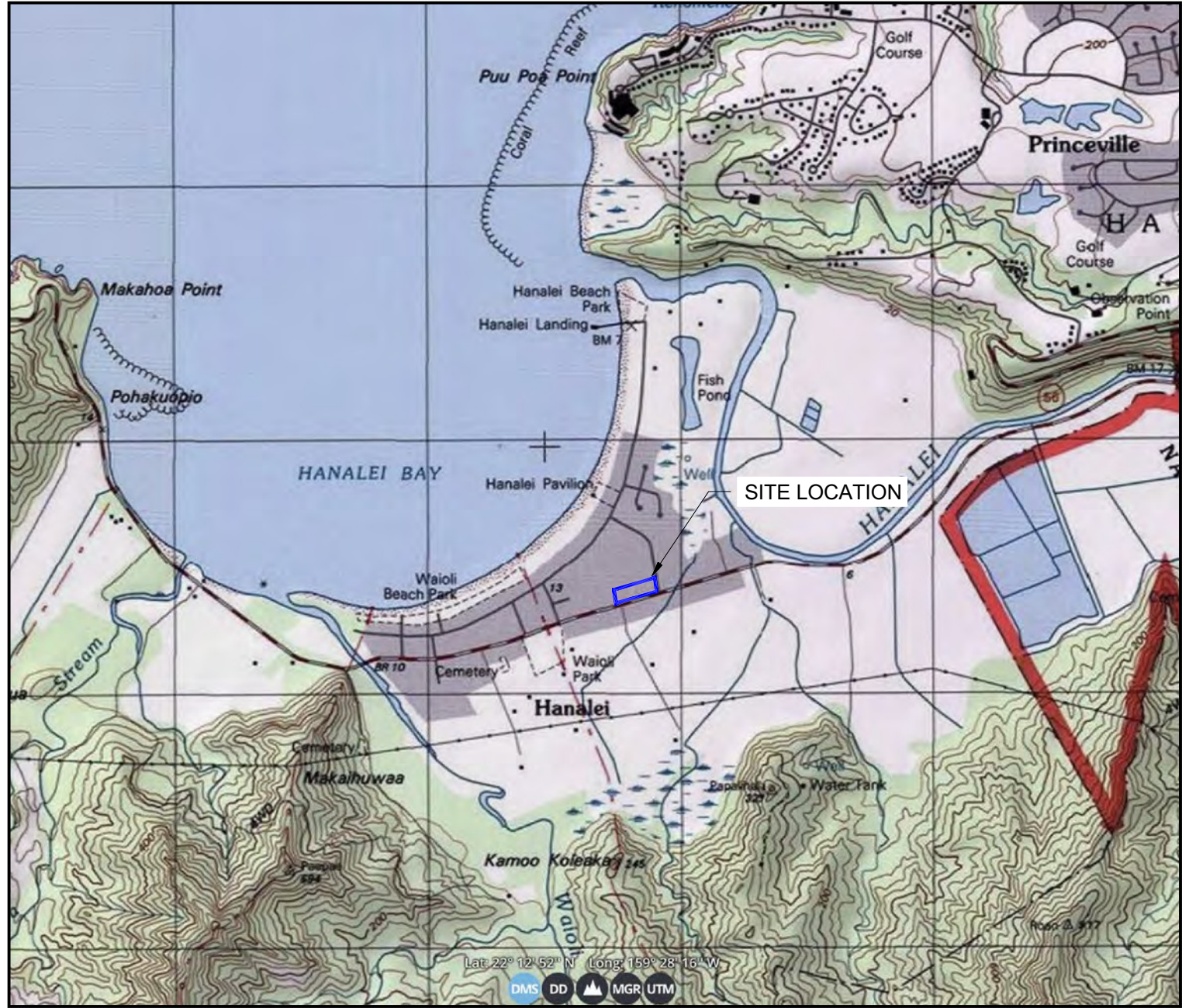
CHING YOUNG VILLAGE WWTP
5-5190 KUHIU HIGHWAY, HANAIEI, HI 96714
TMK: (4) 5-5-002:040, 022

SHEET TITLE
REGIONAL LOCATION & TOPOGRAPHIC MAP
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SCALE: SEE DETAILS

PROJECT NO. 22034_22053

SHEET NO. 1



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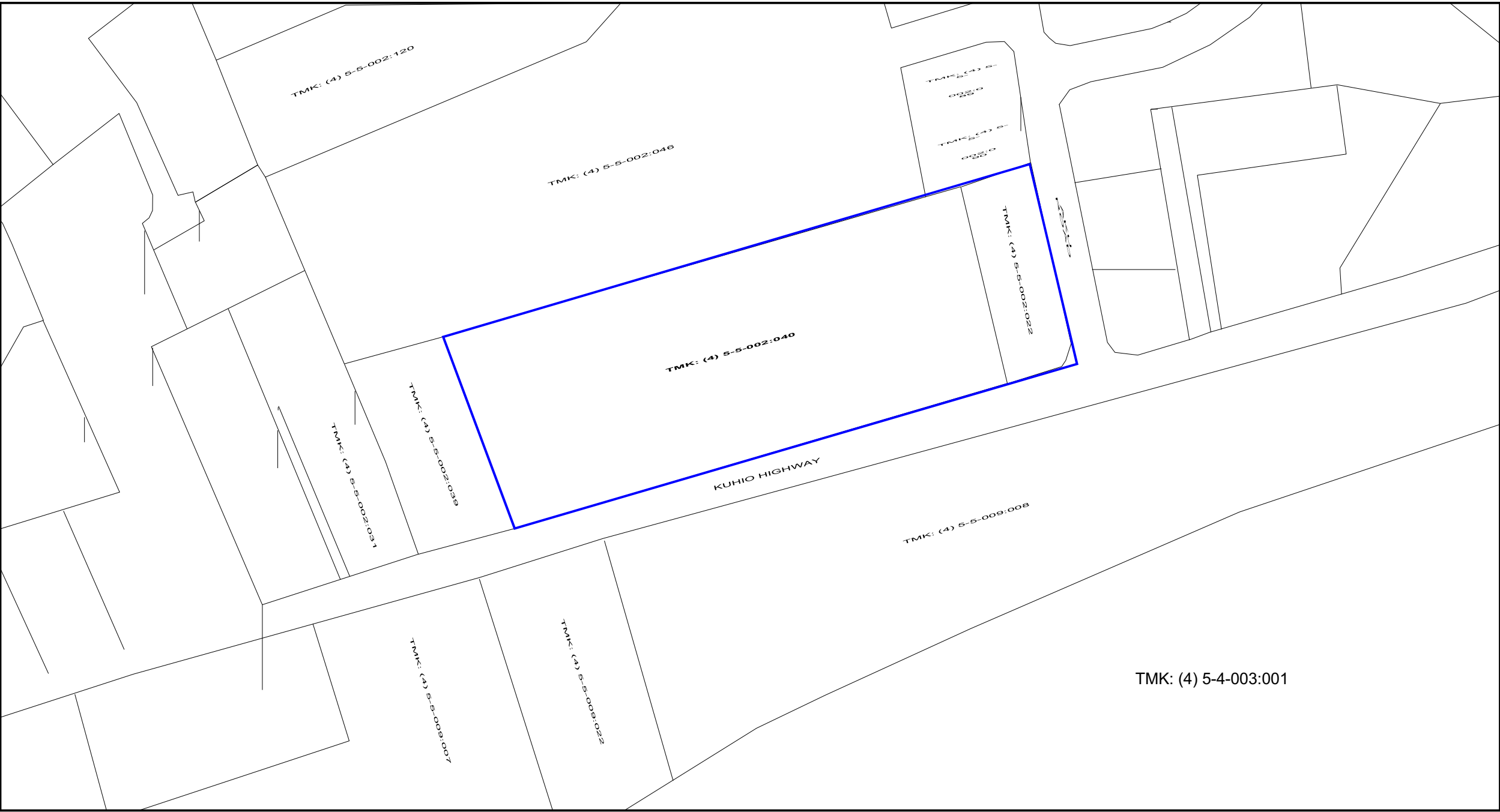
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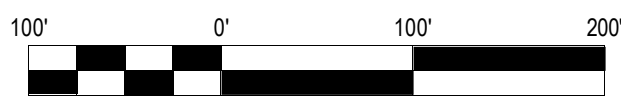
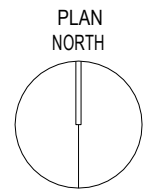
LEGEND

- CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022
- _____ TMK BOUNDARIES

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SOURCES
 qpublic.schneidercorp.com

CHING YOUNG VILLAGE WWTP 5-5190 KUHIO HIGHWAY, HANAIEI, HI 96714 TMK: (4) 5-5-002:040, 022	FIGURE 2 TAX MAP	WWW.LAULEALLC.COM
SHEET TITLE		



SCALE: 1" = 100'

SCALE: 1" = 100'

PROJECT NO. 22034_22053

SHEET NO. 2

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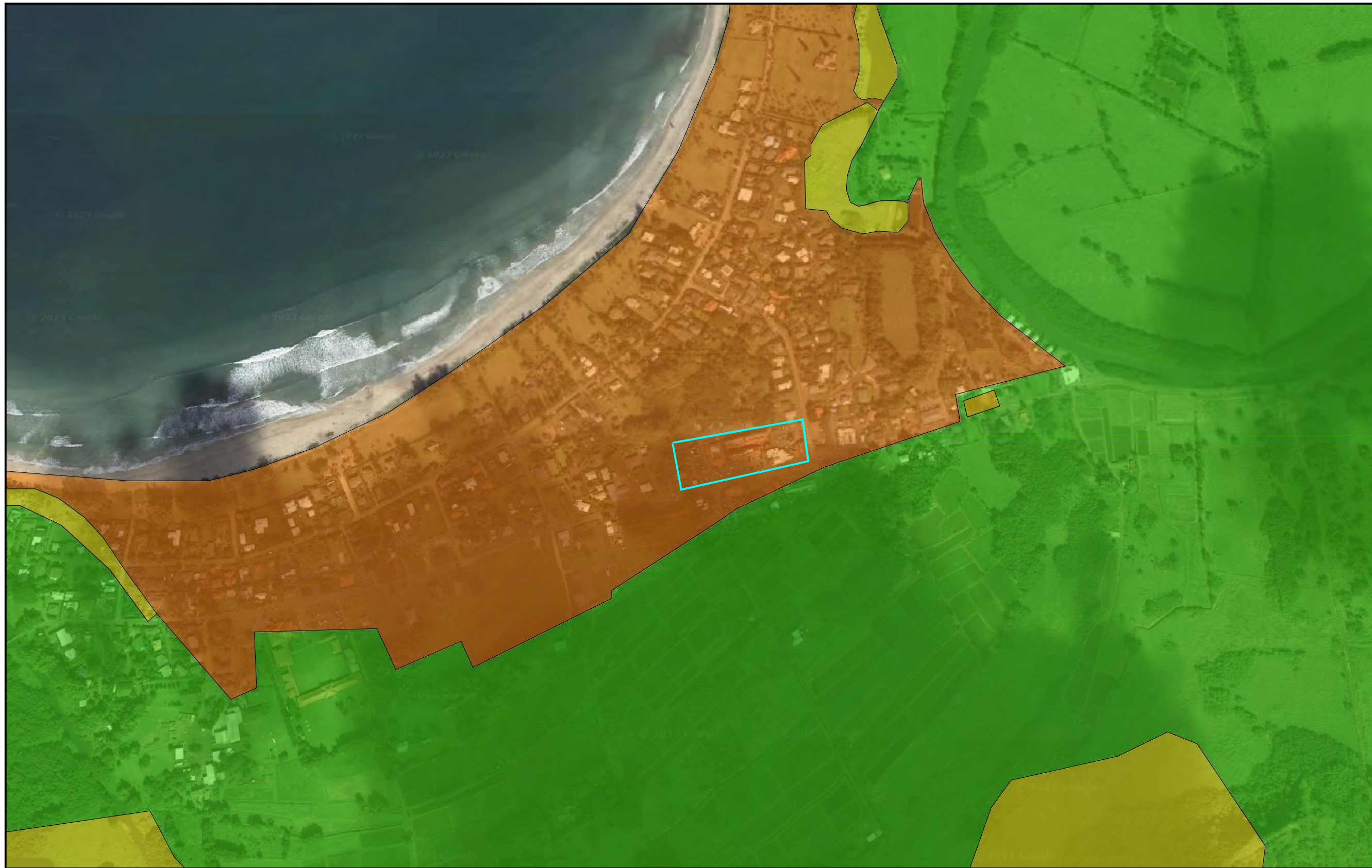
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LEGEND

CHING YOUNG VILLAGE
 TMK: (4) 5-5-002:040, 022

STATE LAND USE DISTRICT BOUNDARY CODE

- URBAN
- CONSERVATION
- AGRICULTURE

NOTES
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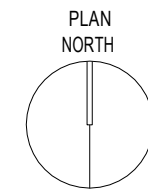
SOURCES

Aerial Map, 22°12'11"N 159°29'36"W, Google Earth, May 17, 2023.
 Hawaii Statewide GIS Program, State Land Use Districts, Decemehr 2020.

CHING YOUNG VILLAGE WWTP
 5-5190 KUHIO HIGHWAY, HANAIEI, HI 96714
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FIGURE 3
 STATE LAND USE MAP

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SCALE: 1" = 500'

SCALE: 1" = 500'

PROJECT NO. 22034_22053

SHEET NO. 3

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- LEGEND**
- CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022
 - CITY & COUNTY OF KAUAI LAND USE ORDINANCE (LUO) ZONING CODE**
 - RESIDENTIAL
 - NEIGHBORHOOD COMMERCIAL
 - NATURE CONSERVATION
 - OPEN DISTRICT
 - AGRICULTURAL DISTRICT
 - EXISTING PARK
 - SPECIAL TREATMENT - PUBLIC
 - SPECIAL TREATMENT - CULTURAL, HISTORIC
 - GENERAL COMMERCIAL

NOTES

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SOURCES

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CHING YOUNG VILLAGE WWTP
5-5190 KUHIU HIGHWAY, HANAIEI, HI 96714
TMK: (4) 5-5-002:040, 022

FIGURE 4
COUNTY OF KAUAI ZONING MAP

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SCALE: 1" = 500'

PROJECT NO. 22034_22053

SHEET NO. 4

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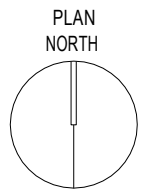
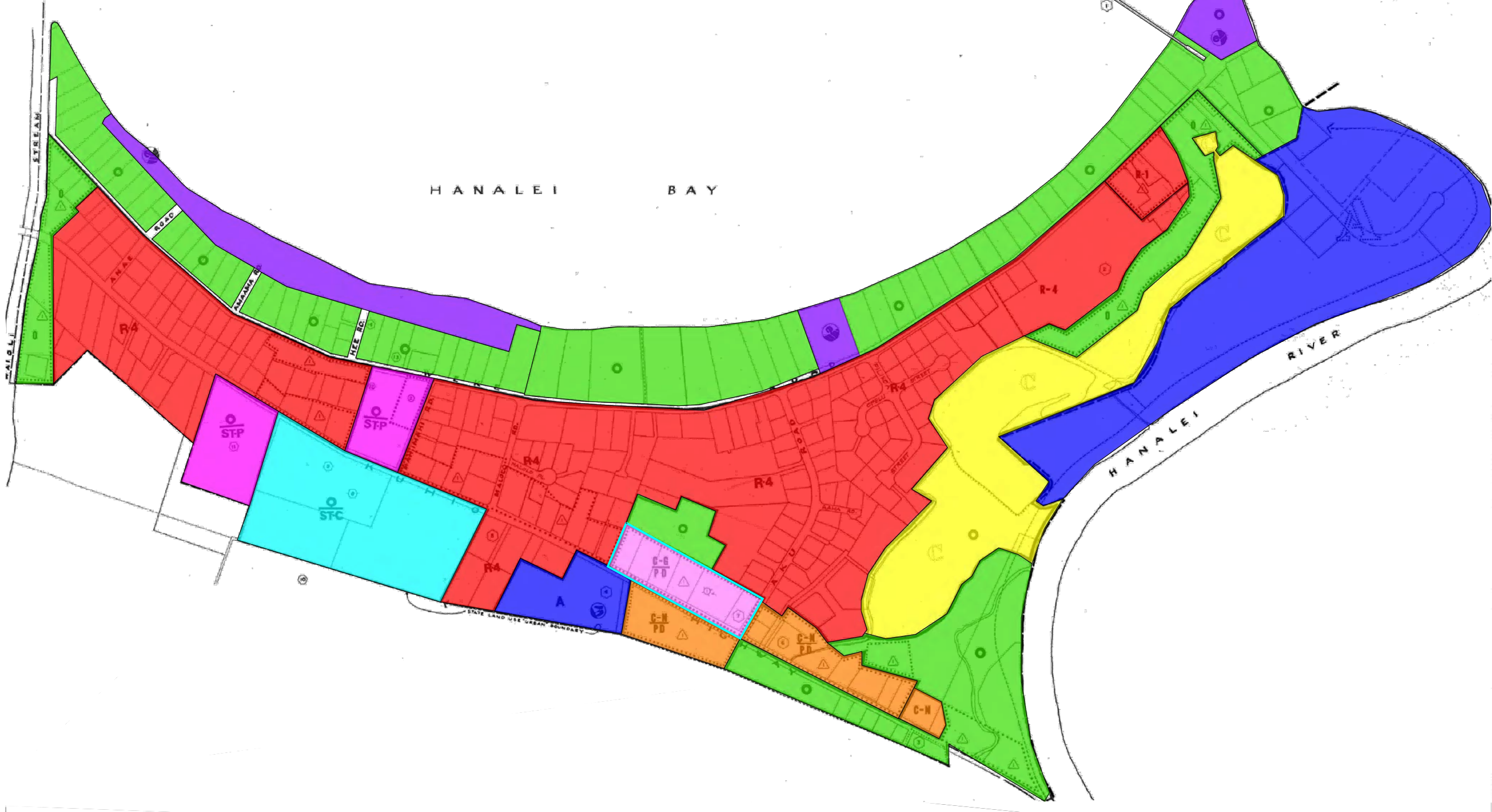
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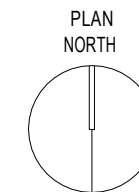
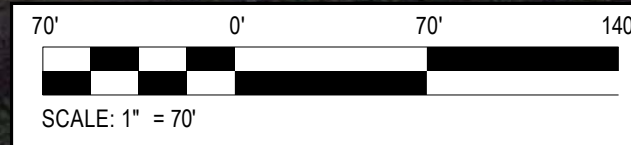
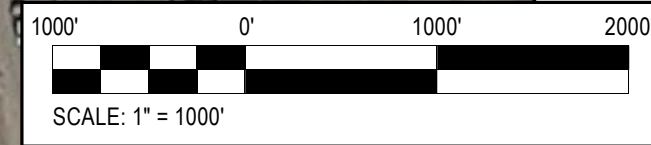
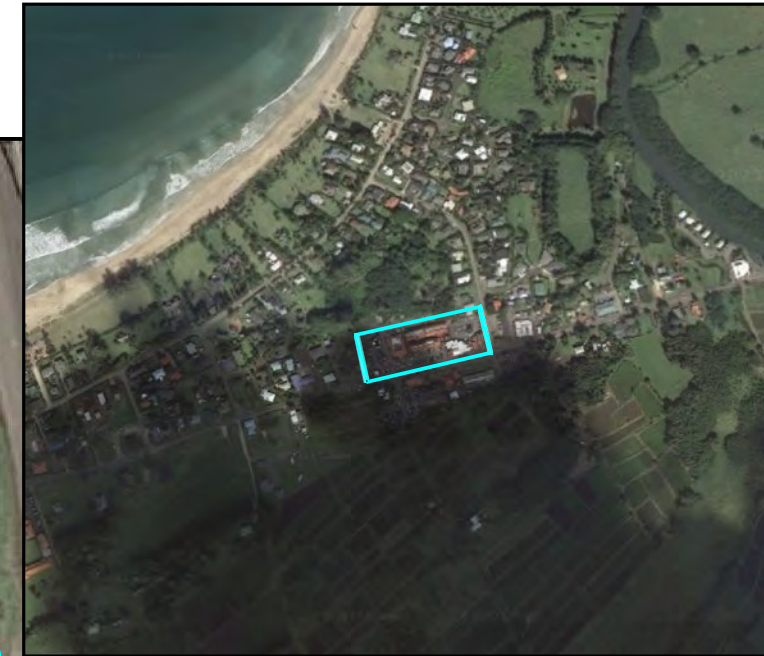
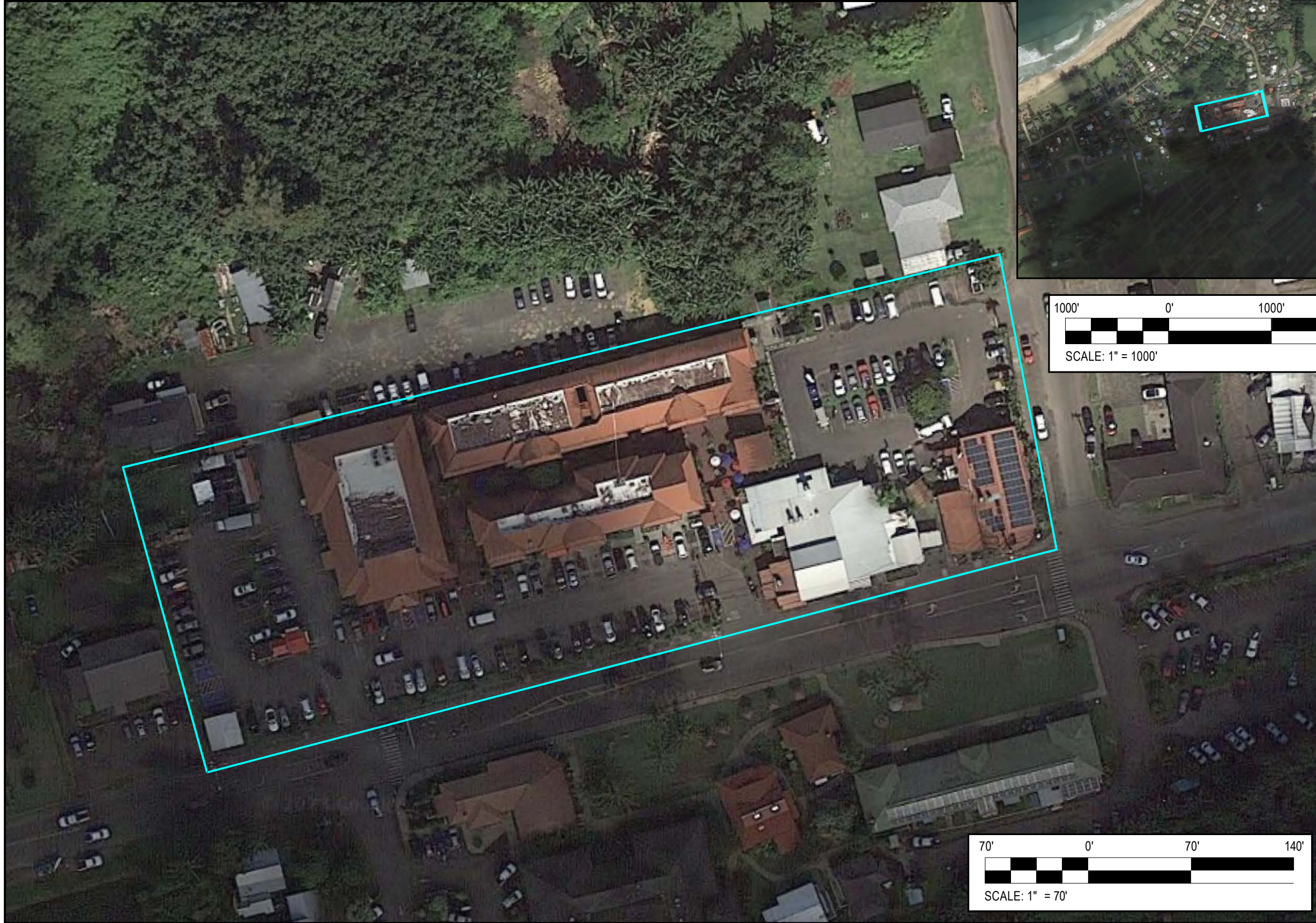
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LEGEND
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SOURCES
 Aerial Map, 22°12'11"N 159°29'36"W, Google Earth, May 17, 2023.

CHING YOUNG VILLAGE WWTP
 5-5190 KUHIHIO HIGHWAY, HANAIEI, HI 96714
 TMK: (4) 5-5-002:040, 022

FIGURE 5
 SITE LOCATION

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SCALE: SEE DETAILS

PROJECT NO. 22034_22053

SHEET NO. 5

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LEGEND

- CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022
- ROAD
- PROPERTY LINES
- BUILDING/STRUCTURE
- CONCRETE
- GRASS
- AREA OF NEW WWTP SYSTEM

NOTES
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SOURCES
C-100 General Site Plan, Ching Young Village WWTP Replacement. Laulea Engineering, LLC., 2023.

CHING YOUNG VILLAGE WWTP 5-5190 KUHIO HIGHWAY, HANAIEI, HI 96714 TMK: (4) 5-5-002:040, 022	FIGURE 6 SITE PLAN	WWW.LAULEALLC.COM
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SCALE: 1" = 50'
PROJECT NO. 22034_22053
SHEET NO. 6

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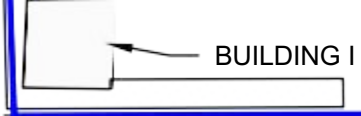
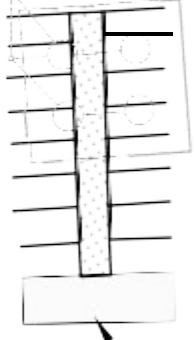
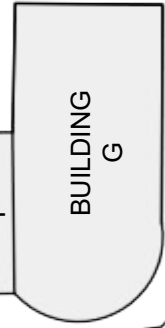
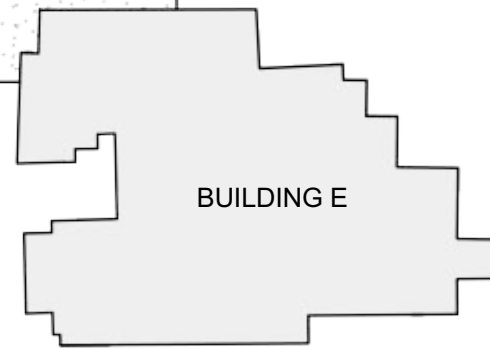
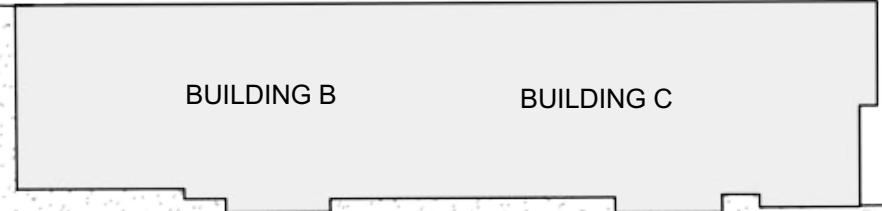
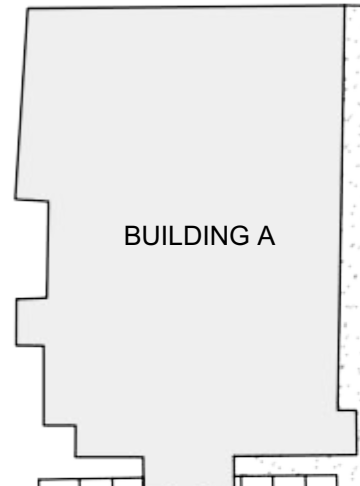
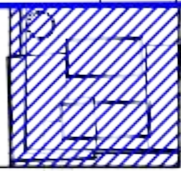
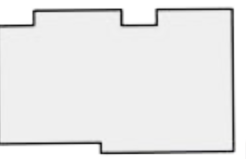
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POST OFFICE



STAGE

BUILDING H

BUILDING I

BUILDING A

BUILDING B

BUILDING C

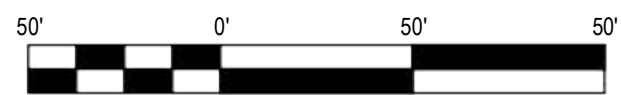
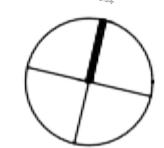
BUILDING D

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KUHIO HIGHWAY



SCALE: 1" = 50'

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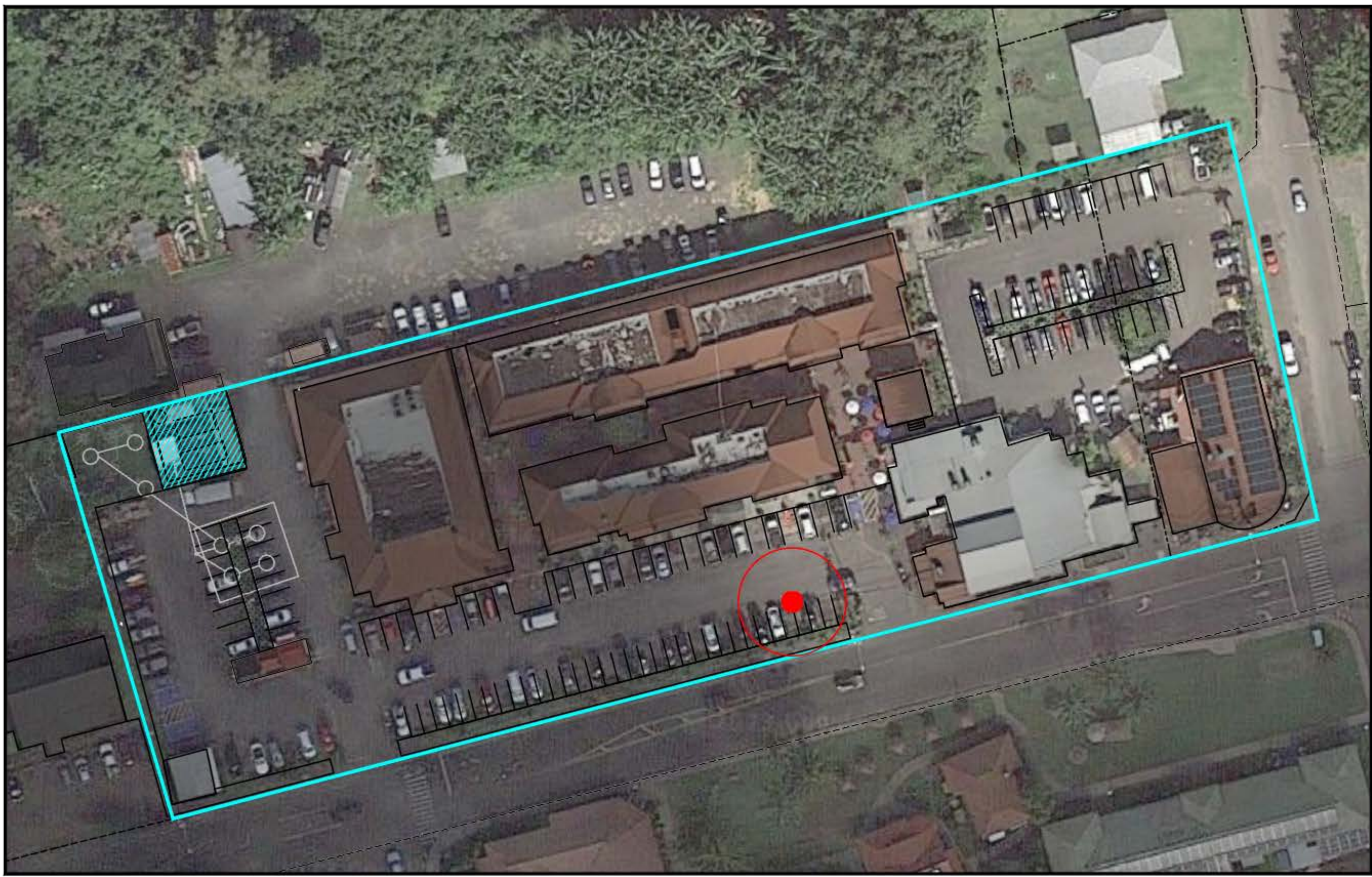
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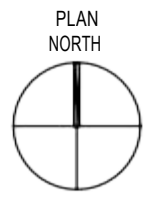
LEGEND

- CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022
- ROAD
- PROPERTY LINES
- AREA OF NEW WWTP SYSTEM
- INJECTION WELL

NOTES
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SOURCES
C-100 General Site Plan, Ching Young Village WWTP Replacement. Laulea Engineering, LLC., 2023.
Aerial Map, 22°12'11"N 159°29'36"W. Google Earth. May 17, 2023.

CHING YOUNG VILLAGE WWTP 5-5190 KUHIHO HIGHWAY, HANAIEI, HI 96714 TMK: (4) 5-5-002:040, 022	FIGURE 7 SITE PLAN & AERIAL MAP WWW.LAULEALLC.COM	SHEET TITLE
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SCALE: 1" = 50'

PROJECT NO. 22034_22053

SHEET NO. 7

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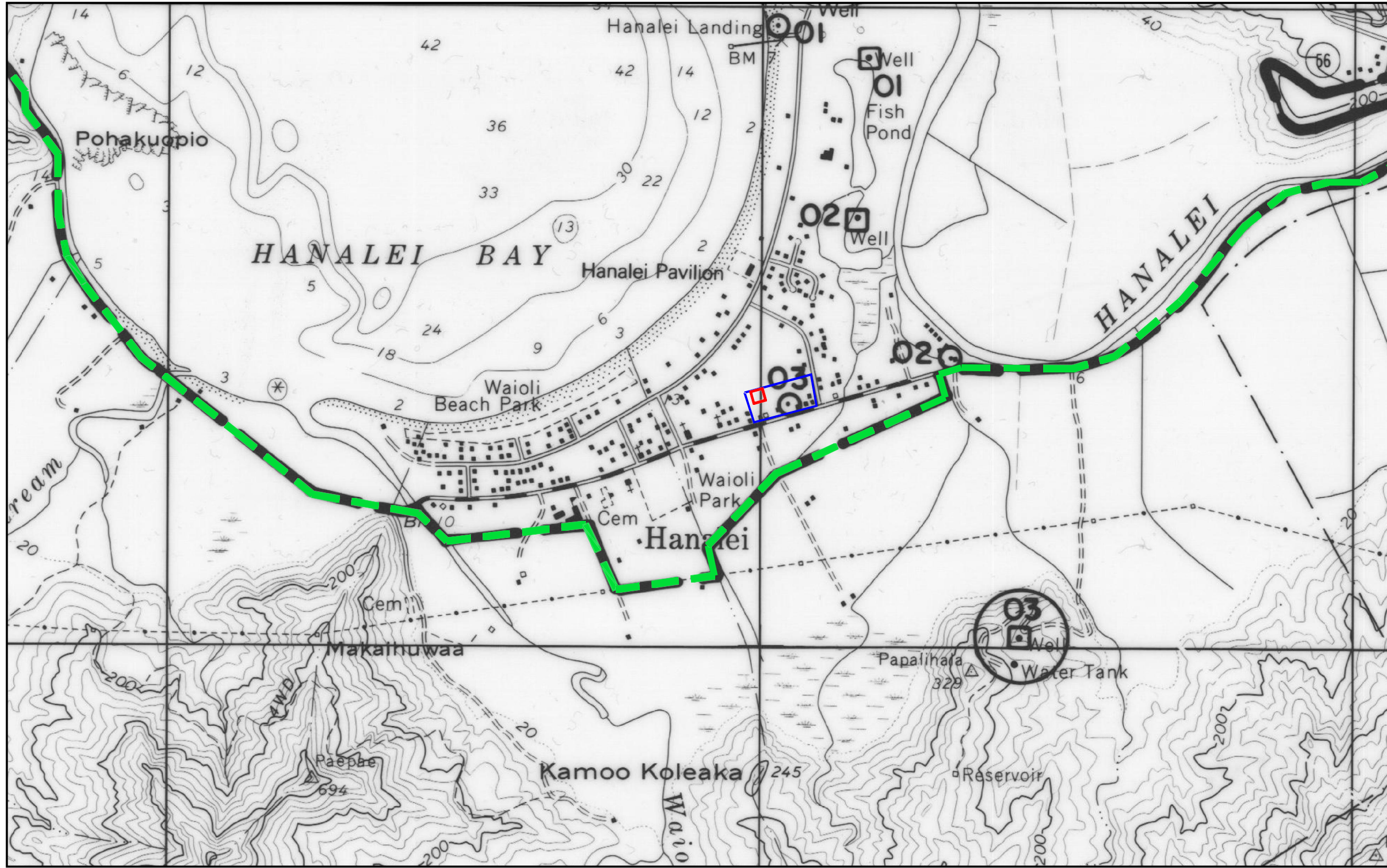
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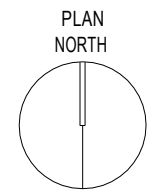
LEGEND

	CHING YOUNG VILLAGE TMK: (4) 5-5-002:040, 022
	LOCATION OF EXISTING WASTE WATER TREATMENT SYSTEM
	UNDERGROUND INJECTION CONTROL (UIC) LINE
	DRINKING WATER WELL
	INJECTION WELL
	OTHER WELL

NOTES
THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

SOURCES
HawaiiStateGIS, Hawaii Special Management Area Locator. August 26, 2022.

CHING YOUNG VILLAGE WWTP 5-5190 KUHIO HIGHWAY, HANAIEI, HI 96714 TMK: (4) 5-5-002:040, 022	FIGURE 8 UIC LINE & WELL LOCATION MAP	WWW.LAULEALLC.COM



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SCALE: 1" = 1000'

PROJECT NO. 22034_22053

SHEET NO. 8

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LEGEND

CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022

STATE LAND USE DISTRICT BOUNDARY CODE

UNCONSOLIDATED SEDIMENT

CORAL REEF & HARDBOTTOM

OTHER DELINEATIONS

UNKNOWN

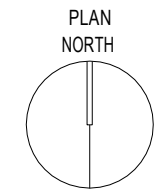
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SOURCES

Aerial Map, 22°12'11"N 159°29'36"W. Google Earth. May 17, 2023.

Hawaii Statewide GIS Program, Benthic Habitat. February 2018.

CHING YOUNG VILLAGE WWTP 5-5190 KUHIO HIGHWAY, HANAIEI, HI 96714 TMK: (4) 5-5-002:040, 022	FIGURE 9 BENTHIC MAP	WWW.LAULEALLC.COM
SHEET TITLE		



SCALE: 1" = 1000'

PROJECT NO. 22034_22053

SHEET NO. 9

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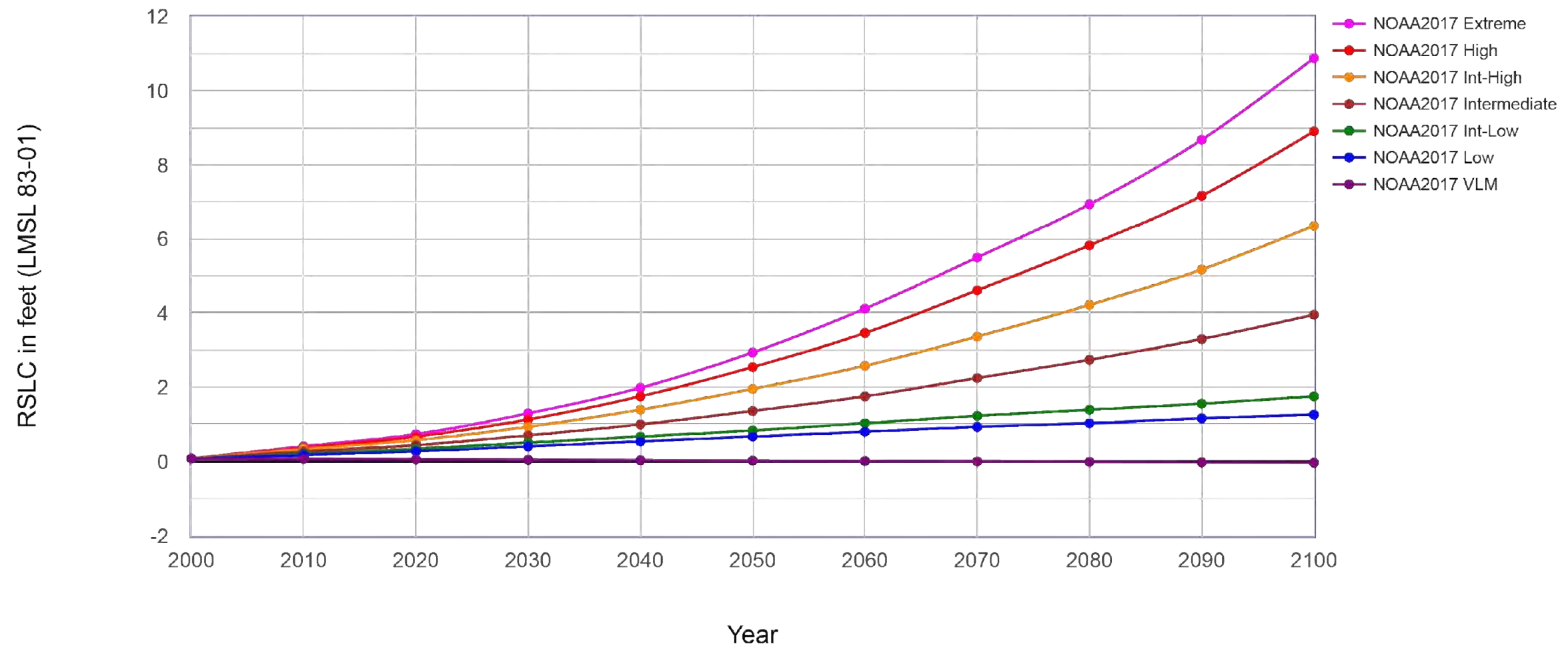
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NOAA et al. 2017 Relative Sea Level Change Scenarios for : NAWILIWILI BAY



Relative Sea Level Change Scenarios for Nawiliwili Bay
 Scenarios for NAWILIWILI BAY
 NOAA2017 VLM: -0.00112 feet/yr
 All values are expressed in feet

Year	NOAA2017 VLM	NOAA2017 Low	NOAA2017 Int-Low	NOAA2017 Intermediate	NOAA2017 Int-High	NOAA2017 High	NOAA2017 Extreme
2000	0.09	0.09	0.09	0.09	0.09	0.09	0.09
2010	0.08	0.19	0.22	0.28	0.35	0.38	0.42
2020	0.07	0.28	0.35	0.45	0.58	0.68	0.74
2030	0.05	0.42	0.51	0.71	0.94	1.14	1.30
2040	0.04	0.55	0.68	1.01	1.40	1.76	1.99
2050	0.03	0.68	0.84	1.37	1.96	2.55	2.94
2060	0.02	0.81	1.04	1.76	2.58	3.47	4.12
2070	0.01	0.94	1.24	2.25	3.37	4.62	5.50
2080	-0.00	1.04	1.40	2.75	4.22	5.83	6.94
2090	-0.01	1.17	1.56	3.30	5.17	7.17	8.68
2100	-0.02	1.27	1.76	3.96	6.35	8.91	10.88

LEGEND
 1. NAWILIWILI Bay is a permanent service for mean sea level (MSL) station.
 2. LMSL 83-01 is the local mean sea level from 1993 to 2001, which adjusts the MSL datum by 0.084 feet.
 3. RSLC = Relative Sea Level Change
 VLM = Vertical Land Movement (feet/year)

NOTES
 THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

SOURCES
 NOAA et al. 2017
 USACE Sea Level Change Curve Calculator (2017.55). https://cwbi-app.sec.usace.army.mil/rcslc/slcc_calc.html

CHING YOUNG VILLAGE WWTP
 5-5190 KUHIHO HIGHWAY, HANAIEI, HI 96714
 TMK: (4) 5-5-002:040, 022

SHEET TITLE
 FIGURE 10
 RELATIVE SEA LEVEL CHANGE SCENARIOS
 FOR NAWILIWILI BAY

WWW.LAULEALLC.COM

SCALE: NTS
 PROJECT NO. 22034_22053
 SHEET NO. 10

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ENGINEERING, LLC

LAULEA ENGINEERING, LLC
 P.O. Box 29855
 HONOLULU, HI 96825
 WWW.LAULEALLC.COM

LEGEND

- CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022
- SEA LEVEL RISE EXPOSURE
AREA, 3.2 FEET SCENARIO

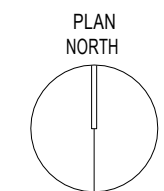
NOTES
 THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

SOURCES
 Aerial Map, 22°12'11"N 159°29'36"W, Google Earth, May 17, 2023.
 Hawaii Statewide GIS Program, SLR Exposure Area - 3.2 Ft. Scenario, September 4, 2022.

CHING YOUNG VILLAGE WWTP
 5-5190 KUHIU HIGHWAY, HANAIEI, HI 96714
 TMK: (4) 5-5-002:040, 022

FIGURE 11
 SEA LEVEL RISE EXPOSURE MAP

WWW.LAULEALLC.COM



SCALE: 1" = 500'

SCALE: 1" = 500'

PROJECT NO. 22034_22053

SHEET NO. 11

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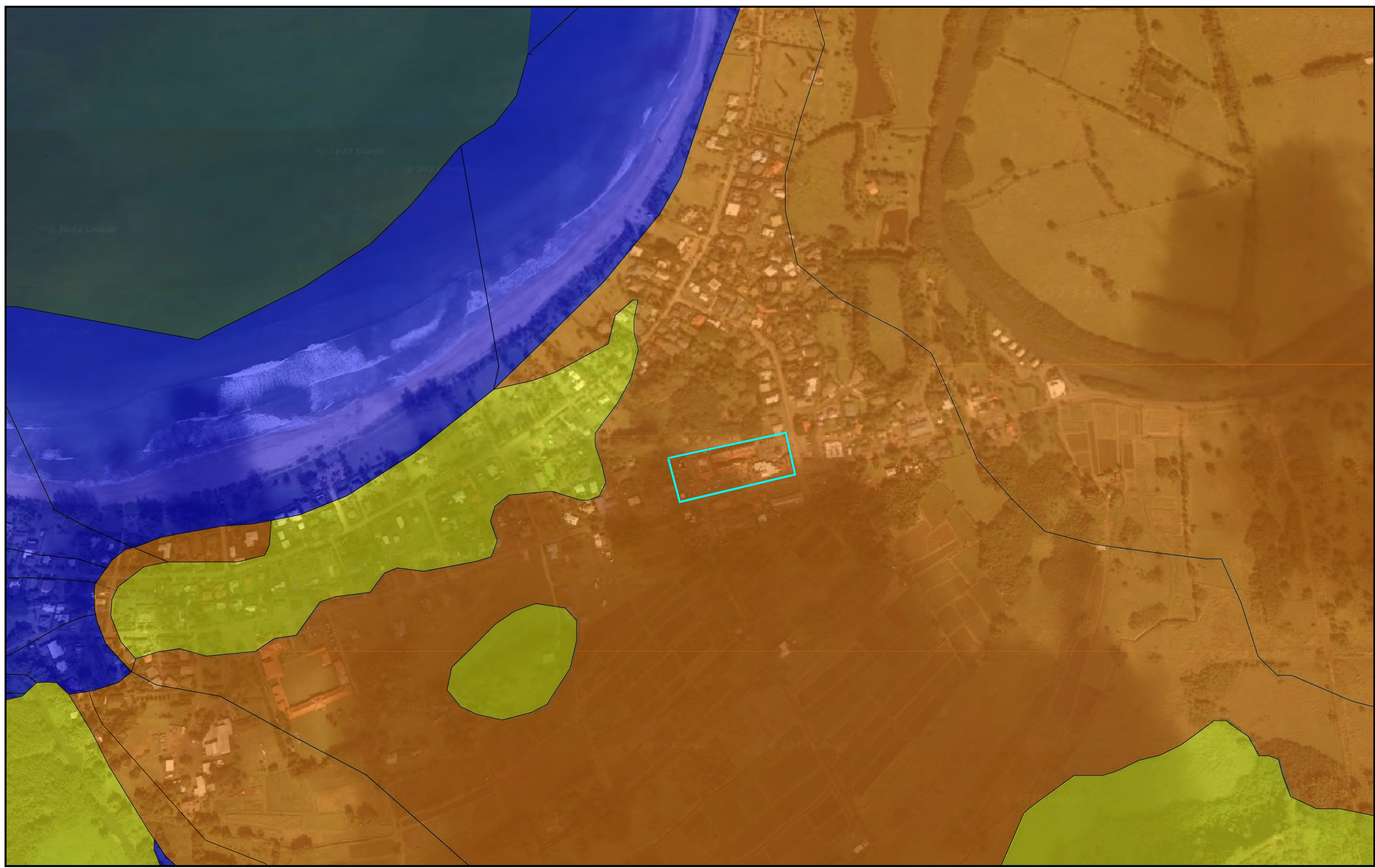
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ENGINEERING, LLC

LAULEA ENGINEERING, LLC
P.O. Box 29855
HONOLULU, HI 96825
WWW.LAULEALLC.COM

LEGEND

CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022

SPECIAL FLOOD HAZARD AREA

Special Flood Hazard Areas (SFHA) are defined as the area that will be inundated by the flood event having a 1% chance of being equaled or exceeded in any given year. The 1% annual chance flood is also referred to as the base flood or 100-year flood.

Zone AE: Area subject to inundation by the 1%-annual-chance flood event for which Base Flood Elevations (BFEs) have been determined.

Zone VE: Area inundated by the 1%-annual-chance flood event with Velocity Hazard (wave action) for which BFEs have been determined.

Zone X: Area of moderate risk within the 0.2%-annual-chance flooding.

NOTES

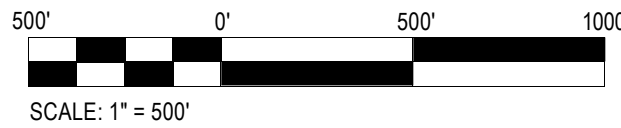
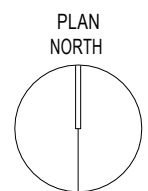
THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

SOURCES

Aerial Map, 22°12'11"N 159°29'36"W. Google Earth. May 17, 2023.

Hawaii Statewide GIS Program, Flood Hazard Areas (DFIRM) - Kauai County. September 17, 2021.
<https://hub.arcgis.com/datasets/HIStateGIS:flood-hazard-areas-dfirm-kauai-county/explore?location=22.201487%2C-159.498341%2C15.41>

CHING YOUNG VILLAGE WWTP 5-5190 KUHIO HIGHWAY, HANAIEI, HI 96714 TMK: (4) 5-5-002:040, 022	FIGURE 12 FLOOD HAZARD MAP	WWW.LAULEALLC.COM
SHEET TITLE		



SCALE: 1" = 500'

PROJECT NO. 22034_22053

SHEET NO. 12

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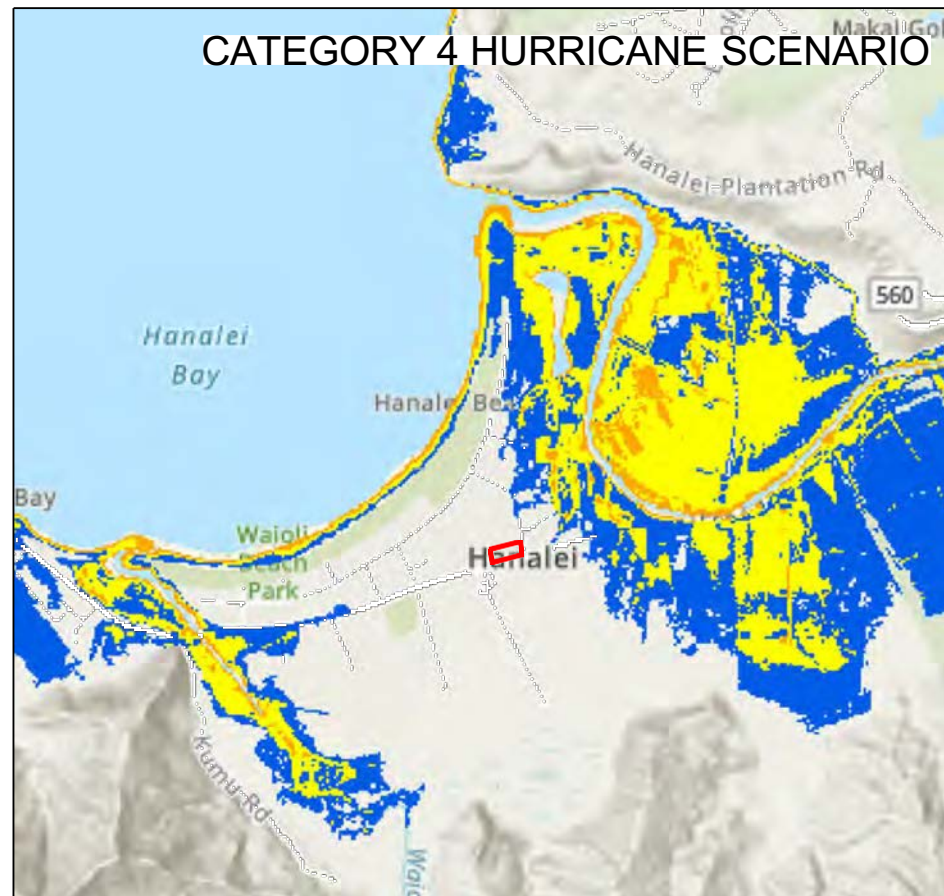
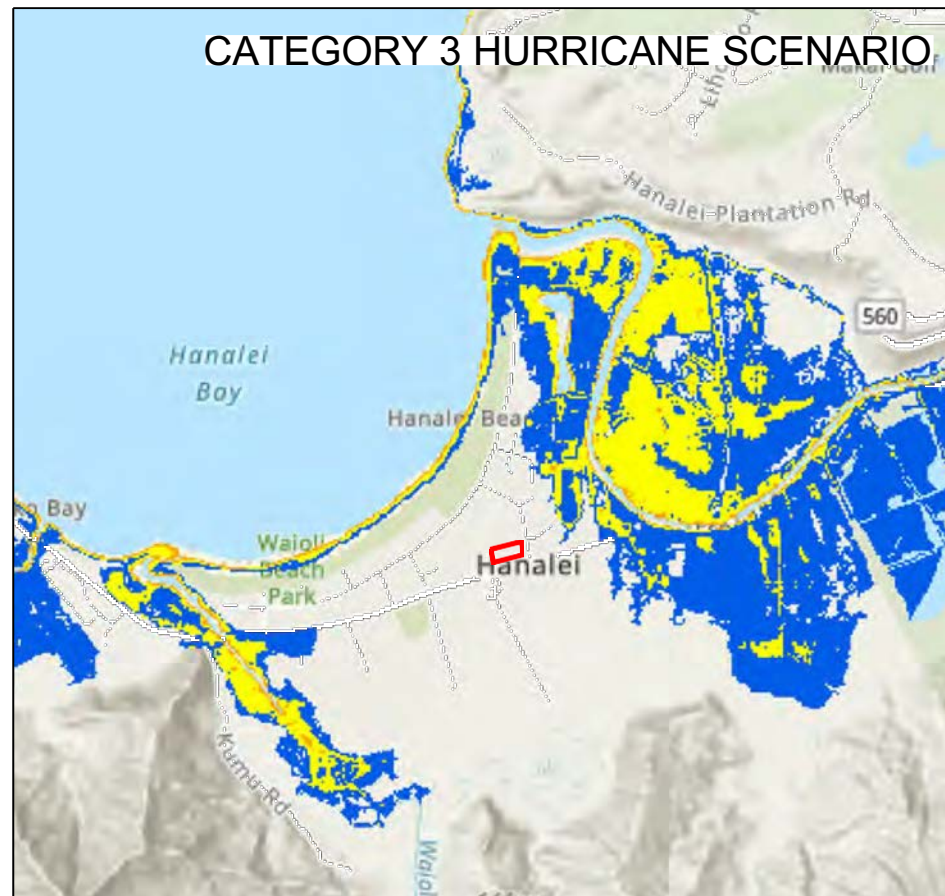
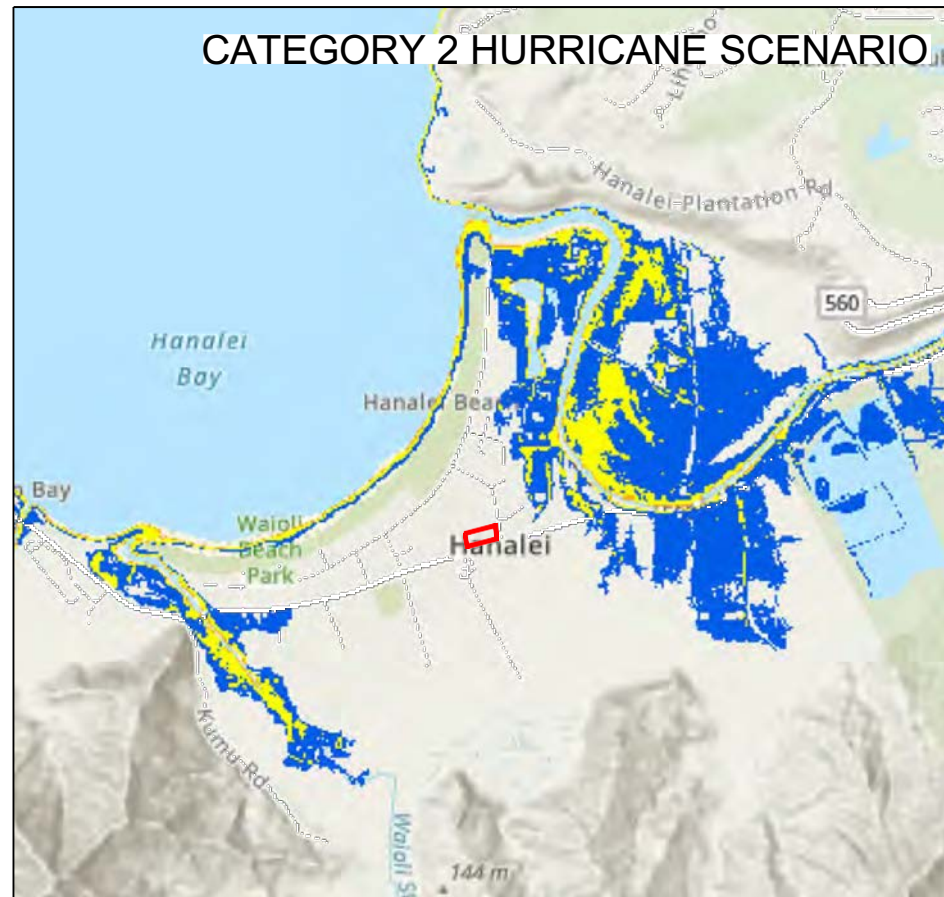
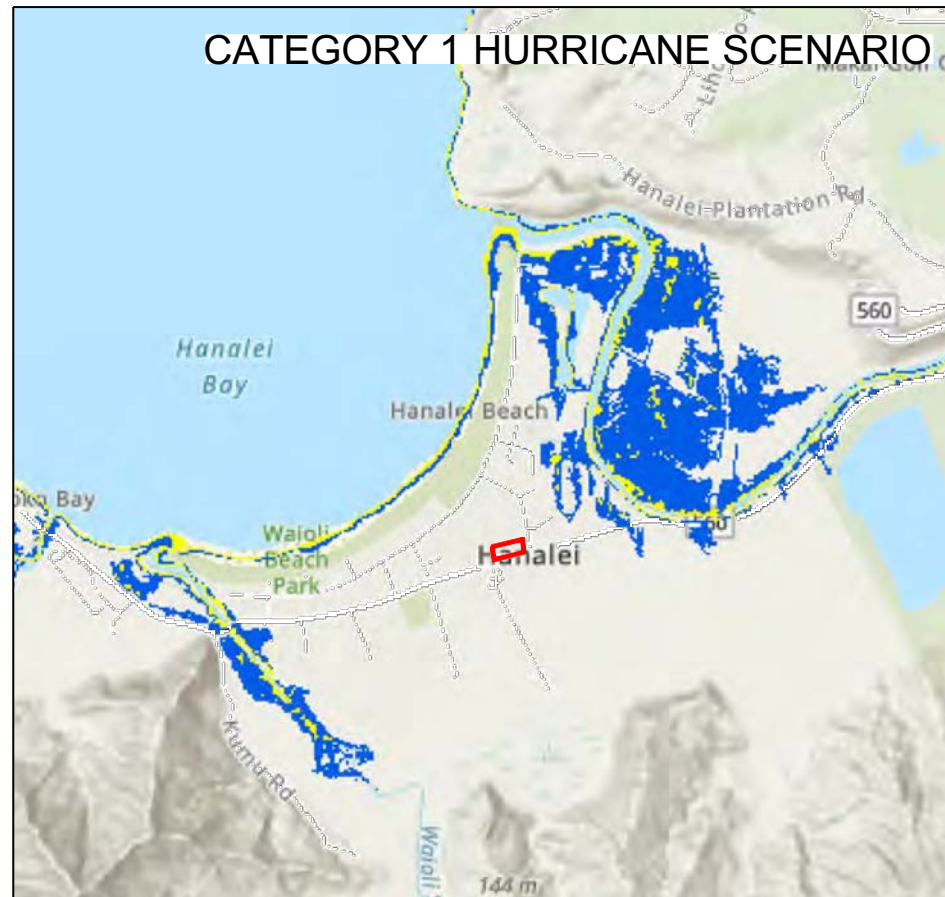
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LEGEND

CHING YOUNG VILLAGE
TMK: (4) 5-5-002:040, 022

HAWAII STORM SURGE INUNDATION HEIGHT

Up to 3 feet above ground

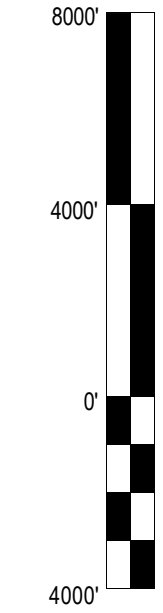
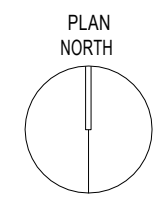
Greater than 3 feet above ground

Greater than 6 feet above ground

Greater than 9 feet above ground

NOTES
THE ACCURACY OF THIS DOCUMENT IS LIMITED TO THE QUALITY AND SCALE OF THE SOURCE INFORMATION. THIS DOCUMENT IS NOT A LEGAL REPRESENTATION OF AN ENGINEERED SURVEY.

SOURCES
National Hurricane Center Storm Surge Risk Maps.
<https://experience.arcgis.com/experience/203f772571cb48b1b8b50fcc3272e2c>



CHING YOUNG VILLAGE WWTP 5-5190 KUHIO HIGHWAY, HANAIEI, HI 96714 TMK: (4) 5-5-002:040, 022	FIGURE 13 STORM SURGE HAZARD MAP	WWW.LAULEALLC.COM
SHEET TITLE		

SCALE:	1" = 4000'
PROJECT NO.	22034_22053
SHEET NO.	13

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APPENDIX A
Site Photographs



Photo 1: View of existing WWTP enclosure. Facing South. Property line ends at short concrete wall in lower right.



Photo 2: View of existing WWTP enclosure. Facing northwest.



Photo 3: Location of existing backup injection wells to the west of existing WWTP enclosure. Facing north



Photo 4: View of existing backup injection wells and existing WWTP enclosure. Facing east

PHOTOGRAPHIC LOG

PROJECT NAME Ching Young Village Shopping Center
Wastewater Treatment Plant Replacement

PROJECT NO. 22034_22053

SHEET NO.

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PHOTO NOS.

1-4

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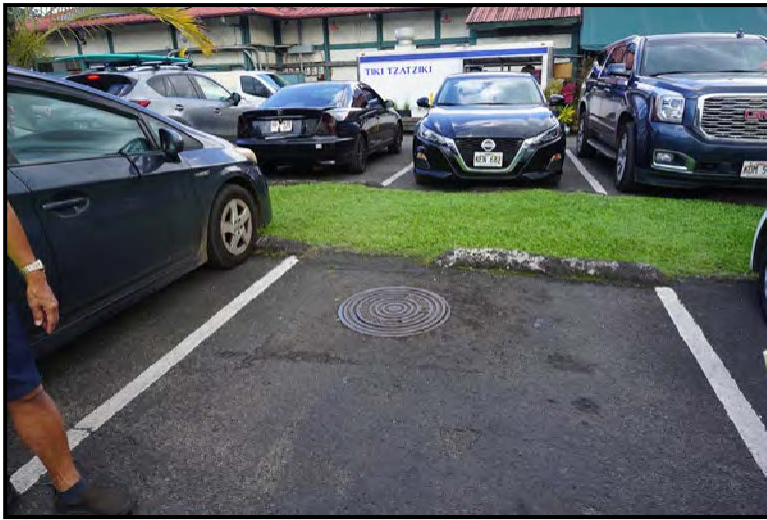


Photo 5: View of primary injection well location. Facing east. All primary wells located within 30 feet from this location.



Photo 6: Western portion of West parking lot. Facing south. General location of existing primary injection wells.



Photo 7: Eastern portion of west parking lot. Facing south. General location of existing primary injection wells.



Photo 8: View of existing WWTP enclosure (right side of photo). Facing West.

PHOTOGRAPHIC LOG

PROJECT NAME

Ching Young Village Shopping Center
Wastewater Treatment Plant Replacement

PROJECT NO.

22034_22053

SHEET NO.

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PHOTO NOS.

5 – 8

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Photo9: Existing WWTP Communitor within WWTP enclosure. Facing southwest.



Photo10: Existing aeration tank within WWTP enclosure. Facing southeast.



Photo11: Interior view of existing WWTP enclosure. Facing northeast.

PHOTOGRAPHIC LOG

PROJECT NAME

Ching Young Village Shopping Center
Wastewater Treatment Plant Replacement

PROJECT NO.

22034_22053

SHEET NO.

3

PHOTO NOS.

9 – 11

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Photo 12: Area view of south boundary of the Property. Facing east from west parking lot.



Photo 13: Area view of south boundary of the Property. Facing west from west parking lot.



Photo 14: Area view of south boundary of the Property. Facing west from Aku Street.



Photo 15: Area view of east boundary of the Property. Facing north from Kuhio Highway.

PHOTOGRAPHIC LOG

PROJECT NAME Ching Young Village Shopping Center
Wastewater Treatment Plant Replacement

PROJECT NO.
22034_22053

SHEET NO.
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PHOTO NOS.
12 – 15

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Photo 16: Area view of east parking lot. Facing west from Aku Street.



Photo 17: Area view of north border of the Property facing west from east parking lot.



Photo 18: Area view of north border of the Property facing west from east parking lot.

PHOTOGRAPHIC LOG

PROJECT NAME

Ching Young Village Shopping Center
Wastewater Treatment Plant Replacement

PROJECT NO.

22034_22053

SHEET NO.

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PHOTO NOS.

16 – 18

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Honolulu, HI 96825



Photo 19: Building located on north side of existing WWTP. Facing west.



Photo 20: Shopping center entrance between Building A (left) and Building D (Right) Facing North.



Photo 21: Area view of north border of the Property. Facing northwest from second story of Building C.



Photo 22: Area view of adjacent property to the north of the Ching Young Village Shopping center.

PHOTOGRAPHIC LOG

PROJECT NAME Ching Young Village Shopping Center
Wastewater Treatment Plant Replacement

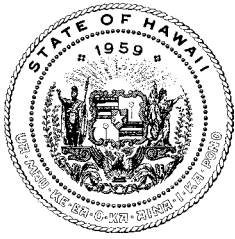
PROJECT NO.
22034_22053

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PHOTO NOS.
19 – 22

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P.O. Box 29855
Honolulu, HI 96825

APPENDIX B
Comments and Responses



STATE OF HAWAII OFFICE OF PLANNING & SUSTAINABLE DEVELOPMENT

235 South Beretania Street, 6th Floor, Honolulu, Hawaii'i 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii'i 96804

DAVID Y. IGE
GOVERNOR

MARY ALICE EVANS
ACTING DIRECTOR

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: <https://planning.hawaii.gov/>

DTS 202211071441NA

Coastal Zone
Management
Program

November 23, 2022

Environmental
Review Program

Mr. Chris Garcia
Laulea Engineering, LLC
1019 Waimanu Street, #208
Honolulu, HI 96814

Land Use
Commission

Land Use Division

Dear Mr. Garcia:

Special Plans
Branch

Subject: Pre-Consultation: Environmental Assessment for Ching Young
Wastewater Treatment System Replacement Project at 5-5190 Kuhio
Highway, Hanalei, Kauai, Hawaii; Tax Map Key: (4) 5-5-002: 040

State Transit-
Oriented
Development

Statewide
Geographic
Information System

The Office of Planning and Sustainable Development (OPSD) is in receipt of your Environmental Assessment (EA) pre-consultation request, dated October 26, 2022, for the Wastewater Treatment Plant (WWTP) Replacement Project at 5-5190 Kuhio Highway, Hanalei, Kauai.

Statewide
Sustainability Branch

According to the pre-consultation request, the construction of the proposed WWTP components will expand the footprint of the existing WWTP location by utilizing additional 100 square feet to the south of the current WWTP, which was permitted in 1982.

The proposed WWP replacement will consist of the following:

- The existing wet well/lift station
- A salvage existing Equalization Tank
- A new above ground secondary treatment tank/system, approximately 42-feet long, 12-feet wide, and 12-feet high
- A new modular utility enclosure
- A new emergency generator and fuel tank
- An injection well disposal system, including piping to injection wells, modification of one injection well to a primary deep injection well, modification of one injection well to a backup deep injection well, existing five seepage pits for additional overflow capacity, and a new WWTS perimeter fencing

The proposed project is located within the county designated Special Management Area (SMA) under the Hawaii Coastal Zone Management (CMZ) Law, Hawaii Revised Statutes (HRS) Chapter 205A.

The OPSD has reviewed the subject pre-consultation request and has the following comments to offer:

1. The EA should discuss the triggers of preparation of an EA set forth in HRS Chapter 343 and/or county SMA rules.
2. Hawaii CZM Law, HRS Chapter 205A, requires all state and county agencies to enforce the CZM objectives and policies. The subject EA should include an assessment with mitigation measures, if needed, as to how the proposed WWTP replacement project conforms to each of the CZM objectives and supporting policies set forth in HRS Chapter 205A-2, as amended.
3. If the subject EA will serve as a supporting document for the SMA Use Permit application, the OPSD recommends that the EA specifically discuss the compliance with the requirements of SMA use under the county SMA rules for the proposed WWTP replacement project by consulting with the County of Kauai Planning Department.
4. In enacting Act 224, SLH 2005, the legislature found that light pollution in Hawaii's coastal areas and artificial lighting illuminating the shoreline and ocean waters can be disruptive to avian and marine life. The exterior lighting and lamp posts associated with the proposed development shall be cut-off luminaries to provide the necessary shielding to mitigate potential light pollution in the coastal areas, and lessen possible seabird strikes. No artificial light, except as provided in HRS §§ 205A-30.5(b) and 205A-71(b), shall be directed to travel across property boundaries toward the shoreline and ocean.
5. To assess potential impacts of sea level rise on the proposed development, the OPSD suggests the EA refer to the findings of the Hawaii Sea Level Rise Vulnerability and Adaptation Report 2017, accepted by the Hawaii Climate Change Mitigation and Adaptation Commission. The Report, and Hawaii Sea Level Rise Viewer at <https://www.pacioos.hawaii.edu/shoreline/slr-hawaii/> particularly identifies a 3.2-foot sea level rise exposure area across the main Hawaiian Islands which may occur in the mid to latter half of the 21st century. The EA should provide a map of the 3.2-foot sea level rise exposure area in relation to the property area, and consider whether site-specific mitigation measures are required to respond to potential impacts of 3.2-foot sea level rise on the proposed WWTP replacement project.
6. The OPSD has developed guidance documents on stormwater runoff strategies and techniques to prevent land-based pollutants and sediment from potentially affecting water resources. The OPSD recommends that the subject EA consider the following stormwater assessment guidance to mitigate stormwater runoff impacts:

Mr. Chris Garcia
November 23, 2022
Page 3

Stormwater Impact Assessments can be used to identify and analyze information on hydrology, sensitivity of coastal and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area.

https://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf

If you have any questions regarding this letter, please contact Shichao Li of our Coastal Zone Management Program at (808) 587-2841.

Sincerely,

A handwritten signature in black ink that reads "Mary Alice Evans". The signature is written in a cursive, slightly informal style.

Mary Alice Evans
Acting Director

December 14, 2022

Mary Alice Evans
State of Hawaii
Office of Planning & Sustainable Development
235 South Beretania Street, 6th Floor
Honolulu, Hawaii, 96813

Subject: Response to Pre-Consultation: Environmental Assessment for Ching Young Village Wastewater Treatment Plant Replacement 5-5190 Kuhio Highway, Hanalei, Kauai, Hawaii; Tax Map Key: (4) 5-5-002:040

Dear Ms. Evans,

Thank you for commenting on the proposed Ching Young Village Wastewater Treatment Plant Replacement. Your comments will be addressed in the Draft Environmental Assessment and/or during the design and permitting phases of the project

Should you have any questions in the future, please contact the undersigned at (808) 372-2037, or via email at chris@lauleallc.com.

Sincerely,



Chris Garcia
Sr. Environmental Scientist
Laulea Engineering LLC

**Technical Assistance for the Proposed Ching Young Village Wastewater Treatment Plant Replacement Project at 5-5190 Kūhiō Hwy, Hanalei, Kauaʻi**

1 message

Dang, Charmian I <charmian_dang@fws.gov>
To: Chris Garcia <chris@lauleallc.com>

Thu, Dec 8, 2022 at 7:44 AM

Dear Mr. Garcia,

Attached you will find the FWS Pacific Islands Fish and Wildlife Office's response to your species list request for the above-named project.

We thank you for your efforts to conserve listed species and native habitats. Please contact me should you have any questions pertaining to this response or require further guidance. When referring to this project, please include this reference number: 2023-0013871-S7-001.



The Pacific Island Fish and Wildlife Office (PIFWO) is transitioning to the use of the Information for Planning and Consultation (IPaC) online portal, <https://ipac.ecosphere.fws.gov/>, for federal action agencies and non-federal agencies or individuals to obtain official species lists, including threatened and endangered species and designated critical habitat in your project area. Using IPaC expedites the process for species list distribution and takes minimal time. Therefore, the IPaC list would fulfill your request for a species list. Since we have already written a response, you can use the response provided for this project and disregard the IPaC species list. Please find step by step instructions attached to use IPaC for future projects, and feel free to share with additional project partners.

For recommended avoidance and minimization measures, you can visit the following webpage <https://www.fws.gov/office/pacific-islands-fish-and-wildlife/library>

aloha,
Charmian Dang

Charmian Dang
U. S. Fish and Wildlife Biologist
Pacific Islands Fish and Wildlife Office
[300 Ala Moana Boulevard, Room 3-122](#)
Honolulu, Hawaii 96850
808-792-9400

2 attachments

-  **2023-0013871-S7-001 Ching Young Village Wastewater Kauai.pdf**
512K
-  **IPaC Info Letter_Species List Instructions_PIFWO_20Apr2022_Final.pdf**
1532K

December 14, 2022

Charmian Dang
U. S. Fish and Wildlife Biologist
Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

Subject: Response to Technical Assistance for the Proposed Ching Young Village
Wastewater Treatment Plant Replacement 5-5190 Kuhio Highway, Hanalei,
Kauai

Ms. Dang,

Thank you for responding to the technical assistance on species biology, habitat, and life requisite requirements for the proposed Ching Young Village Wastewater Treatment Plant Replacement at 5-5190 Kuhio Highway, Hanalei, Kauai. We appreciate your office taking the time to provide a summary of the protected species most likely to be encountered during construction at the site and providing the recommended best management practices to reduce impacts to fish and wildlife.

The summary of species and guidance that the Pacific Islands Fish and Wildlife office have provided will be acknowledged in the Draft Environmental Assessment and conservation measures will be taken in order to avoid or minimize adverse effects to the federally protected species. Best management practices will be implemented during construction to minimize and avoid sedimentation and erosion impacts to water quality.

Should you have any questions in the future, please contact the undersigned at (808) 372-2037, or via email at chris@lauleallc.com.

Sincerely,



Chris Garcia
Sr. Environmental Scientist
Laulea Engineering LLC



Chris Garcia <chris@lauleallc.com>

FW: [EXTERNAL] Laulea Engineering - Project: Ching Young Village - Pre-consultation Letter

1 message

Frazier, William Mark <william.frazier@doh.hawaii.gov>

Mon, Nov 7, 2022 at 2:56 PM

To: Chris Garcia <chris@lauleallc.com>, Wesley Wong <wesley@lauleallc.com>, Randall Duldulao <randall@lauleallc.com>

Hello. Please note any modification to the injection wells will need the proper UIC modification forms to be submitted and our ATC issued prior to any well modifications..

—

W. Mark Frazier

Geologist, UIC Program

Safe Drinking Water Branch

State Department of Health

Uluakupu Building 4

[2385 Waimano Home Road, Suite 110](#)

[Pearl City, Hawaii 96782-1400](#)

[Ph: 808 586-4258](#)

From: DOH.SDWB <DOH.sdwb@doh.hawaii.gov>

Sent: Monday, November 7, 2022 8:42 AM

To: Frazier, William Mark <william.frazier@doh.hawaii.gov>; Van Der Zander, Iris <iris.vanderzander@doh.hawaii.gov>

Subject: FW: [EXTERNAL] Laulea Engineering - Project: Ching Young Village - Pre-consultation Letter

Is this email for UIC?

Please let me know.

Mahalo Geda

From: Celynna Capenia <celynna@lauleallc.com>
Sent: Friday, November 4, 2022 8:30 AM
To: DOH.SDWB <DOH.sdw@doh.hawaii.gov>
Cc: Chris Garcia <chris@lauleallc.com>; Wesley Wong <wesley@lauleallc.com>; Randall Duldulao <randall@lauleallc.com>
Subject: [EXTERNAL] Laulea Engineering - Project: Ching Young Village - Pre-consultation Letter

Aloha Safe Drinking Water Branch,

Please see the attached pre-consultation letter for the proposed Ching Young Village wastewater treatment system replacement. We kindly ask if you could review and forward any comments to our Senior Environmental Scientist- Chris Garcia at chris@lauleallc.com

Should you have any questions or concerns please do not hesitate to contact us.

--

Mahalo,

Celynna Capenia

Office Manager

LAULEA

ENGINEERING, LLC

+1 (808) 379-7766 | 1019 Waimanu St #208, Honolulu, HI 96814

celynna@lauleallc.com | www.lauleallc.com

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Chris Garcia <chris@lauleallc.com>

Re: Laulea Engineering - Project: Ching Young Village - Pre-consultation Letter

1 message

Felicia Cowden <fcowden@kauai.gov>

Mon, Nov 7, 2022 at 5:59 AM

To: Celynna Capenia <celynna@lauleallc.com>

Cc: Chris Garcia <chris@lauleallc.com>, Wesley Wong <wesley@lauleallc.com>, Randall Duldulao <randall@lauleallc.com>, "mching1953@yahoo.com" <mching1953@yahoo.com>

Aloha,

Thank you for sharing the intended plans to upgrade Ching Young's wastewater treatment center. I am familiar with the location as I was a tenant of the shopping center and lived about a block away.

Is this somehow expected to come before our county council? This would not be typical for us to have a decision on such an improvement, though I am interested.

You may want to check with our Kaua'i Planning Department regarding a bill our council approved this past week. It is a requirement for installing 15% of parking spaces to have or be ready for electric vehicle chargers on NEW developments with over 100 parking spaces and a softer requirement for smaller projects.

However this requirement could be triggered with an additional 2000 sq. ft. modification to an existing property. I opposed this well-intended bill that can possibly create undue burdens on projects such as this wastewater system renovation being proposed.

Here is a link to the bill that is soon to be an ordinance: https://kauai.granicus.com/MetaViewer.php?view_id=&event_id=1076&meta_id=165873

Your proposed main new structure is only 504 sq.ft. I am unclear how the Planning or Building departments may interpret the overall square footage of the improvement area. My expectation is this EV charger parking requirement will not impact your wastewater improvement plan. This letter is simply a "heads-up" about a potential for an unexpected additional cost. Here is an image of the portion of the bill that applies to additions:

Section 8- .2 EV Infrastructure Requirements: General Provisions.

The following provisions shall apply to this Article:

(a) This Article applies to zoning permit applicants for certain properties referenced in Section 8- .3 for:

(1) New construction.

(2) Modifications to increase the size of any existing or new structure on the property by 2,000 square feet or more, provided that only EVCS-installed requirements shall apply to modifications, not EV-ready requirements.

(b) The zoning permit conditions required by this Article shall include the conditions that:

(1) All required EVCS-installed systems shall be maintained in working order.

Mahalo for your information outreach. Let me know if assistance is needed.

Felicia Cowden
Councilmember, Kaua'i County Council
Public Safety & Human Services Committee Chair
Public Works & Veterans Services Committee Vice Chair
[4396 Rice Street, Suite 209](#)
[Līhu'e, Hawai'i 96766](#)
Cellular: (808) 652-4363
Telephone: (808) 241-4092
Facsimile: (808) 241-6349
E-mail: fcowden@kauai.gov

From: Celynna Capenia <celynna@lauleallc.com>
Sent: Friday, November 4, 2022 8:43:11 AM
To: Council Members <CouncilMembers@kauai.gov>

Cc: Chris Garcia <chris@lauleallc.com>; Wesley Wong <wesley@lauleallc.com>; Randall Duldulao <randall@lauleallc.com>
Subject: Laulea Engineering - Project: Ching Young Village - Pre-consultation Letter

CAUTION: This email originated from outside the County of Kauai. Do not click links or open attachments even if the sender is known to you unless it is something you were expecting.

Aloha Kauai City Council,

Please see the attached pre-consultation letter for the proposed Ching Young Village wastewater treatment system replacement. We kindly ask if you could review and forward any comments to our Senior Environmental Scientist- Chris Garcia at chris@lauleallc.com

Should you have any questions or concerns please do not hesitate to contact us.

--

Mahalo,
Celynna Capenia
Office Manager

LAULEA

ENGINEERING, LLC

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celynna@lauleallc.com | www.lauleallc.com

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ENGINEERING DIVISION
DEPARTMENT OF WATER, COUNTY OF KAUAI
MICHAEL K. HINAZUMI, P.E.



JOSEPH E. TAIT
MANAGER AND CHIEF ENGINEER

January 3, 2023

Chris Garcia
1019 Walmanu St #208
Honolulu, HI 96814

Subject: Pre-Assessment Consultation for Draft Environmental Assessment: Ching Young Village Wastewater Treatment System Replacement Project on TMK: 5-5-002:040, Kūhi‘ō Highway, Hanalei, Kaua'i

This is regarding your letter dated October 26, 2022. We have no objections to the proposed Draft Environmental Assessment. The following are our comments on the subject Draft Environmental Assessment for the Ching Young Village wastewater treatment system replacement.

We recommend that any approval of the proposed application be conditioned whereby the applicant shall be made aware that prior to the DOW recommending water meter service or Special Management Area (SMA) approval, the applicant will be required to prepare and receive DOW's approval of construction drawings for necessary water system facilities and construct said facilities. These facilities shall include but not be limited to the interior plumbing with the appropriate backflow prevention device. The applicant is also required to have the device tested by a certified tester and submit to the DOW a completed test report signed by the certified tester on an annual basis.

Requests for additional water meters or increase in water meter size will be dependent on the adequacy of the source, storage and transmission facilities existing at that time.

If you have any questions, please contact Ms. Margie Mills at (808) 245-5421 or mmills@kauaiwater.org.

Sincerely,

Jason Kagimoto, P.E.

Engineering Division, Water Resources and Planning Section

5-5-002-040, 20220103, Chris Garcia

APPENDIX C

Basis of Design and Engineering Report

**CHING YOUNG VILLAGE
WASTEWATER TREATMENT PLANT
REPLACEMENT
5-5190 KUHIO HIGHWAY, HANAIEI, HI 96714
TMK: (4) 5-5-002:040**

Basis of Design and Engineering Report

Prepared For:
Ching Young Village
5-5190 Kuhio Highway,
Hanalei, HI 96714

Prepared By:

LAULEA

ENGINEERING, LLC
P.O. Box 29855
Honolulu, HI 96825

July 27, 2023

TABLE OF CONTENTS

1. PROJECT BACKGROUND 1

2. DESIGN CRITERIA 1

3. GENERAL WASTEWATER TREATMENT SYSTEM DESCRIPTION 1

 3.1 Existing Wet Well/Lift Station..... 2

 3.2 Preloader/Equalization tank: Package Treatment Tank SSI 2

 3.3 Treatment System: SSI EEVolved™ MBBR 2

 3.4 Utility Enclosure and WWTP Perimeter Fencing/Wall 2

 3.5 Sludge Holding Tank 3

 3.6 Electromagnetic Flowmeter 3

4. PROCESS PARAMETERS 3

 4.1 Process Mass Balance 4

5. ELECTRICAL AND EMERGENCY POWER 4

6. UV DISINFECTION 4

7. EXISTING WASTEWATER EFFLUENT DISPOSAL AND SAMPLING 4

8. SCUM, FOG AND SLUDGE MANAGEMENT PLAN 5

9. CONTROLS AND INSTRUMENTATION..... 5

10. OPERATIONS AND MAINTENANCE (O&M) 5

11. ESTIMATED PROCUREMENT AND CONSTRUCTION SCHEDULE 5

12. ESTIMATED EQUIPMENT PROCUREMENT ROM COSTS 5

13. REFERENCES..... 6

ATTACHMENTS

Attachment A-Preliminary Design Plans

Attachment B- SSI Aeration Treatment Package Design/Equipment Summary

Attachment C- Influent Laboratory Report

Attachment D- BWS Billing and Consumption data

Attachment E- Tenant Flow Data

ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

BOD5	Biochemical Oxygen Demand, 5-day
COD	Chemical Oxygen Demand
COTG	Clean-Out to Grade
DLIR	State of Hawai'i Department of Labor and Industrial Relations
DOH WWB	State of Hawai'i Department of Health Wastewater Branch
DOH SDWB	State of Hawai'i Department of Health Safe Drinking Water Branch
EPA	United States Environmental Protection Agency
F/M	Food to microorganism ratio
FOG	Fats, Oils, and/or Grease
ft ²	Square foot or square feet
GI	Grease Interceptor
gpd	Gallon per day
HAR 11-62	Hawai'i Administrative Rules Title 11 Chapter 62
HIOSH	Hawai'i Occupational Safety and Health
L	Liter
lb	Pounds
mg	Milligrams
mpi	Minutes per inch
MSL	Mean Sea Level
OSHA	Occupational Safety and Health Administration
Owner	Subject property owner, which may be Owner(s), Trustee(s), Executor(s), etc.
pH	Potential of hydrogen; quantitative measure of the acidity or alkalinity of a solution
TMK	Tax Map Key
WWTP	Wastewater Treatment Plant

1. PROJECT BACKGROUND

The project involves property with the following information:

Tax Map Keys ("TMK"): (4) 5-5-002:040

Project Address: 5-5190 Kuhio Highway, Hanalei, HI 96714

Total Land Area: 2.485 acres

Property Class: *CG General Commercial*

Ching Young Village is situated in Hanalei on the northern coast of the island of Kauai. The project is bordered by residential properties to the north and farmland to the south with Aku Street to the east and Malolo to the west. There are 8 buildings (A-I) and 44 businesses within the properties. There are 2 public restrooms, 9 tenant restrooms, and 11 restaurants offering seating or takeout orders. The client wishes to increase capacity to 15,000 GPD.

The current WWTP is beyond the typical service life of 40 years.

This project will replace the WWTP with a new, higher capacity WWTP. The new WWTP will discharge treated effluent into the existing three injection wells. The old system is proposed to be kept as a backup system.

2. DESIGN CRITERIA

The daily average design flow is calculated in excel, Appendix 1-CYV Flow Calculations linked below (will be added as appendix)

<https://docs.google.com/spreadsheets/d/1H2PHC5d6Spb8CwTIWWbmLuwfRkSA59-m/edit#gid=384877705>

*See as-builts for basis of design

Based on the table above an average design flow of 11,750 GPD was calculated. The owners of CYV have decided to purchase a wastewater treatment system to have a peak flow capacity of **15,000 GPD for a 1.5 factor of safety**. Influent BOD5 and TSS concentrations are assumed at 300 mg/l, while legal effluent limitations for disposal are set at 60 mg/l [HAR 11-62-26(b)(1)(D) & HAR 11-62-26(b)(2)(D)].

3. GENERAL WASTEWATER TREATMENT SYSTEM DESCRIPTION

The proposed wastewater treatment system will consist of the following:

- Existing Wet Well/Lift Station
- Preloader/Equalization Basin
- Primary Treatment Tank/System
 - Integrated Clarifier Tank
 - Integrated Sludge Holding Tank
 - Electromagnetic Flowmeter
- Multiple Injection Well Disposal System (2 Primary and two 100% Backup Well and 2 seepage pits for Redundancy)

3.1 Existing Wet Well/Lift Station

The existing wet well at CYV is 4' ft in diameter and 15' ft deep. There are two (2)(Lead/Lag Setup) Liberty Omnivore Grinder Pumps. Each of them are 2HP, 208/230 Volt, 1 Phase. Everything runs smoothly and there is no need for refurbishing.

3.2 Preloader/Equalization tank: Package Treatment Tank SSI

The supplied treatment tank shall include process treatment stage, hopper bottom, settling tank, 8000 gal EQ tank, and solids holding tank. The outside total dimensions will be as follows: ~28' L x 12' W x 12'H. The wastewater will then be pumped directly to the SSI MBBR system.

There will also be headworks supplied by Qingdao EVU Environmental and Engineering Equipment Co. A barscreen will be used to remove large floating objects from the water. The bar screen will have a width of 300mm and a pore size of 5mm. The barscreen ditch will have dimensions of 1500x400x1000mm. A control cabinet and liquid sensor will also be provided.

3.3 Treatment System: SSI EEVolved™ MBBR

The SSI MBBR system offers secondary treatment processes. This system offers the lowest process HRT of any biological treatment process, this enables the use of advanced SSI aeration technologies. This system combines the usage of advanced multilayer fine PTFE bubble aeration with SSI biofilm carriers. Bubble aeration reduces required maintenance. Effluent retention screens reduce head loss between systems, and optimize movement of water and media through the tanks. This system will include, MBBR Biofilm Carrier, MBBR Fine Bubble Aeration, 2 Effluent Retention Screens, and 3 Blowers.

The SSI system does meet the requirements of the DOH-WWB HAR 11-62, Subchapter 2 WWTP. Effluent will be treated to a maximum of 30 mg/L in BOD5 concentration and 30 mg/L in Suspended Solids.

3.4 Utility Enclosure and WWTP Perimeter Fencing/Wall

The existing perimeter is a concrete masonry unit wall, there is a gate that allows entry. This surrounds both the treatment system and the utility enclosure.

A utility enclosure will be constructed to include the existing emergency generator which operates the blowers. The utility enclosure will house the primary/standby blowers and the WWTP control panels, this will be a non-occupied structure.

Per the HAR, Title 11, Chapter 46, Community Noise Control Document, a 50 dBA noise level is to be met at the neighboring property lines. The noise generating equipment (i.e., blowers and pumps) will therefore all be housed in the utility enclosure. The blowers will be installed inside Hardy Pro-Closure Sound Stadium to reduce the noise level (108"L x 84"W x 96"H).

3.5 Sludge Holding Tank

The existing wet well and preloader will continue to separate inorganics as well as solids from the process flow. It is recommended that the wet well and sludge holding tank, mentioned in the below paragraph, are pumped on regular recurring schedules.

SSI Aeration will include a sludge holding tank in the package plant at the end of the multi-stage process to store the sludge holding capacity for nearly 8 days retention time. Fine bubble aeration will be used to aerate the sludge tank. Close monitoring of the clarifier capacity will be necessary for the first few months. After monitoring steady state conditions, the operator will be able to provide an accurate estimated frequency/schedule to when the clarifier and wet well need to be pumped.

3.6 Electromagnetic Flowmeter

A new flowmeter will be installed.

4. PROCESS PARAMETERS

The new wastewater treatment plant design BOD5 and TSS loading is based on reasonable loading for residential sewage. The wastewater will be of residential strength and is expected to contain relatively low levels of fat, oils and grease due to the nature of the wastewater sources (residential).

WWTP Design Daily Flow	=	15,000 gallons/day
Design Influent BOD5 Concentration	=	300 mg/L
Design Influent TSS Concentration	=	300 mg/L
Design Grease (after wetwell)	=	45 mg/L
Wetwell/Trash Tank diameter	=	4 feet (<i>Existing</i>)
Overall Tank Dimensions	=	28.5 feet
Overall Tank Operating Volume	=	15,000 gallons
2 MBBR Treatment Stages	=	6 feet each
Settling Tank	=	3 feet
Sludge Holding Tank	=	10.5 feet
MBBR Dimensions	=	6'L x 6'W x 10.5'H
MBBR Operating Volume	=	5,655 gallons/day
Settling Tank Dimensions	=	3'L x 12'W x 10.5'H
Settling Tank Operating Volume	=	5,655 gallons/day

Sludge Holding Dimensions	=	10.5'L x 12'W x 10.5'H
Daily Sludge Generation	=	63 lbs/day
Sludge Retention Time	=	8 days
Sludge Holding Capacity	=	9,896 Gallons
Clarifier Tank Length	=	12 feet
Effluent BOD5 Concentration	=	<30 mg/L

4.1 Process Mass Balance

Design Flow = 15,000 gpd

[Pending Flow Diagram]

Figure 4.1- Process Flow Diagram (Hydraulic Loading and Organic Capacities Shown)

The wet well/trash tank is assumed to perform negligible treatment. Total after SSI:

% BOD5 Reduction from WWTP = 96.3%

% TSS Reduction from WWTP = 96.3%

5. ELECTRICAL AND EMERGENCY POWER

Power is supplied by Kauai Island Utility Cooperative [KIUC]. There are two electrical feeds to the WWTP, one that is a 125 Amp, 3 Phase, 120/208 Volt Panel and the other that is a 225 Amp, 3 Phase, 120/208 Volt Panel.

There is not currently any emergency power to the plant, but there will be an emergency generator with automatic changeover installed.

The lift station does not have emergency power either, and it is too far away to share the emergency power that will be installed for the WWTP. Currently there is a portable generator hooked up to the lift station as needed when power goes out.

6. UV DISINFECTION

UV is not required for this project as treated effluent will be disposed of in injection wells, not saved for reuse.

7. EXISTING WASTEWATER EFFLUENT DISPOSAL AND SAMPLING

Ching Young Village contains seven seepage pits that receive treated wastewater effluent. These seepage pits have a capacity of 8,550 GPD and were the primary method of disposal. Four injection wells will be modified for higher capacity effluent disposal, becoming the new primary

method of disposal and leaving the other seepage pits as 100% backup. Average design flow for this system is 15,000 GPD but rates are typically around 5,000-8,000 GPD.

8. SCUM, FOG AND SLUDGE MANAGEMENT PLAN

Sludge, scum, FOG, and rubbish from the Wet Well/Lift Station and SSI MBBR will be vacuumed and trucked to nearby disposal facilities on a weekly schedule.

Ching Young Village will contract local pumper companies to extract and haul away sludge from the sludge holding tank to the nearest municipal wastewater treatment plant retention availability yet to be determined.

9. CONTROLS AND INSTRUMENTATION

The SSI supplier shall furnish a control system. One N4z VFD Master control panel will be provided. The system shall include *local control stations, motor starters, control switches, relays, and pilot lights*. Control Panels shall be free standing, NEMA 4 enclosures. The panels shall be UL approved. Mounting pad and stand shall be the responsibility of the Installing Contractor. Motor starters shall be 208V/3Ph/60Hz power shall be provided.

10. OPERATIONS AND MAINTENANCE (O&M)

O&M and electronic O&M manuals shall be furnished during start-up. The manuals shall include installation, operation and maintenance instructions for all equipment provided. For WWTP startup, field personnel from SSI Aeration will perform a functional check of each item furnished and start-up of the process. During this time, the field representative will provide operation training, which shall include familiarization with the MBBR process, and review of the O&M manuals. The SSI Aeration supplier to assist with the start-up process.

11. ESTIMATED PROCUREMENT AND CONSTRUCTION SCHEDULE

- Equipment Procurement (*Estimated 8 months*)
 - SSI Aeration System and Utility Enclosure
- Mobilization of General Contractor (1 month)
- WWTP Construction (*Estimated 8 months*)
 - Three (3) Phases:
 - Installation of temporary WWT system, Demolition of Existing WWTP
 - Over excavate, fill, concrete pad for WWTP, utility building, UV system and generator, install steel tank, electrical conduits/wiring, fencing, trenching, etc...
 - Seeding of newly installed WWTP, commissioning of new system
- DOH Approval to Operate (2 months)

12. ESTIMATED EQUIPMENT PROCUREMENT ROM COSTS

- Screen (\$6,000)
- SSI Aeration Package Treatment System (approx. \$590,600)
- Utility Enclosure (*included with package system*)
- SSI Aeration Equipment Startup (*pending*)
- SSI Aeration Freight (*pending*)
- Emergency Generator (*pending*)

Note: excludes construction costs and additional design/permitting fees

13. REFERENCES

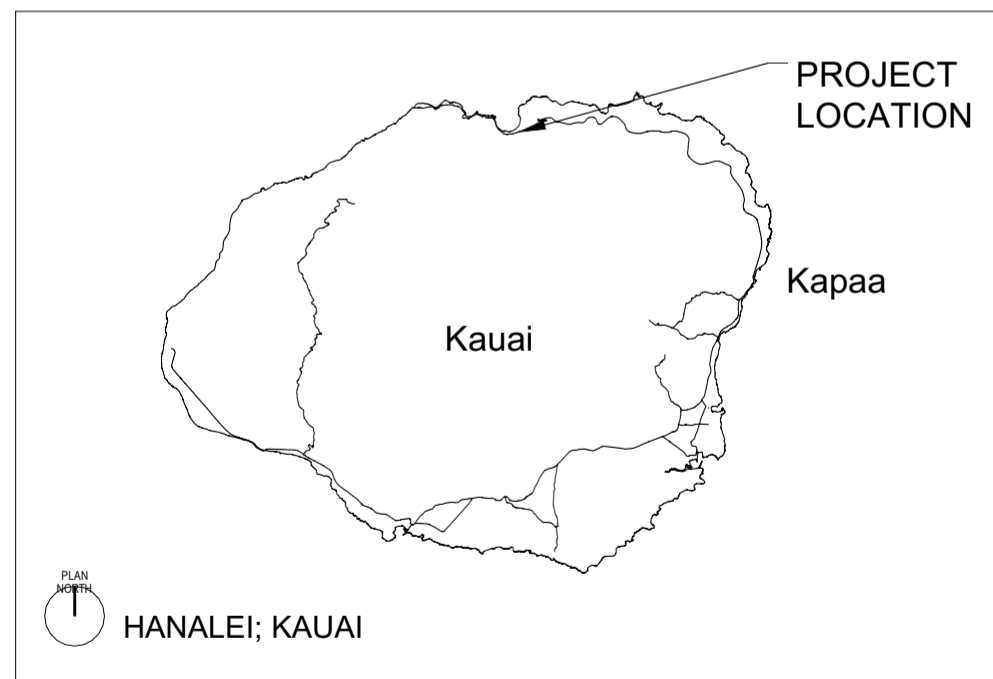
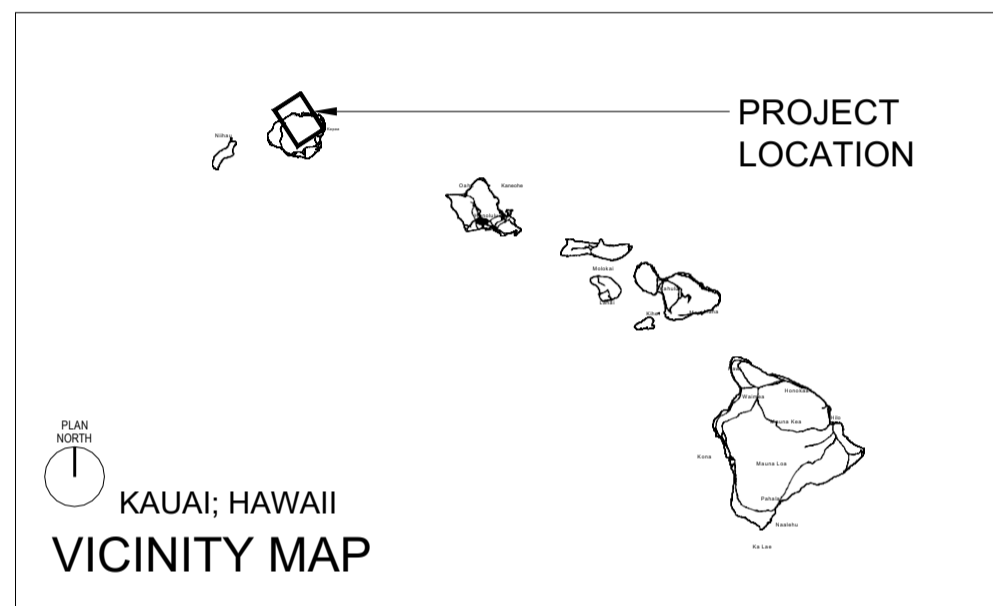
"Hawai'i Administrative Rules", Department of Health, Chapter 62 of Title 11, Wastewater Systems, State of Hawai'i, dated March 21, 2016 (hereafter called "HAR 11-62").

"Onsite Wastewater Treatment Systems Manual", Office of Water, Office of Research and Development, U.S. Environmental Protection Agency, dated February 2002 (hereafter called "EPA OWTSM").

Attachment A- Preliminary Design Plans

CHING YOUNG VILLAGE WWTP REPLACEMENT

PROJECT LOCATION:
 HANAIEI, KAUAI
 TMK: (4) 5-5-002:040



LOCATION MAP

Drawing Index

<u>T-001</u>	<u>TITLE SHEET</u>
<u>T-002</u>	<u>GENERAL NOTES</u>
<u>C-100</u>	<u>GENERAL SITE PLAN</u>
<u>C-101</u>	<u>WWTP SITE PLAN</u>

PREPARED FOR:
 CHING YOUNG VILLAGE
 5-5190 KUHIO HIGHWAY
 HANAIEI, KAUAI, HI 96714

PREPARED BY:
 LAULEA ENGINEERING, LLC.
 1314 S. KING STREET, STE 705
 HONOLULU, HI 96814



Revision Number/ Description

Project Name
**CHING YOUNG VILLAGE
 WWTP REPLACEMENT**

5-5190 KUHIO HIGHWAY,
 HANAIEI, KAUAI, HAWAII 96714

TMK: (4) 5-5-002:040

Drawing Title

TITLE SHEET

Project Number 22027_22038	Date JULY 26, 2023
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Drawn AC	Checked WW	Designed EC
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Drawing Number

T-001

Sheet No. ____ of ____

NOT FOR CONSTRUCTION: PERMIT SET

D

C

Revised October 2014

B

A

CONSTRUCTION NOTES:

- 1. ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984, AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, CITY & COUNTY OF HONOLULU AND THE COUNTIES OF KAUAI, NAUI, AND HAWAII.
2. VERIFY AND CHECK ALL DIMENSIONS AND DETAILS SHOWN ON THE DRAWINGS PRIOR TO THE START OF CONSTRUCTION. ALL CONFLICTS SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONTRACTING OFFICER.
3. THE UNDERGROUND PIPES, CABLES OR DUCTING LINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA, WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
4. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING CITY OR STATE DRAINAGE SYSTEMS, OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVERSED ORDINANCES OF HONOLULU, AS AMENDED, BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
6. CONFINED SPACE

FOR ENTRY BY STATE PERSONNEL, INCLUDING INSPECTORS AND REPRESENTATIVES, INTO A PERMIT REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(B), THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROVIDING:

- I. ALL SAFETY EQUIPMENT REQUIRED BY THE CONFINED SPACE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
a. FULL BODY HARNESSSES FOR UP TO TWO PERSONNEL
b. LIFELINE AND ASSOCIATED CLIPS
c. INGRESS/EGRESS AND FULL PROTECTION EQUIPMENT
d. TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
e. EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
f. CELLULAR TELEPHONE TO CALL FOR EMERGENCE ASSISTANCE.
g. CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20 FEET AWAY).
h. PERSOANL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
II. CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
III. ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).
IV. ALL SAFETY EQUIPMENT SHALL COMPLY WITH THE STANDARDS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION AND ALL APPLICABLE FEDERAL, STATE, AND CITY LAWS AND REGULATIONS RELATING TO SAFETY.

- 8. ALL EXISTING UTILITIES TO REMAIN IN USE, WHETHER OR NOT SHOWN ON THE PLANS BY THE CONTRATOR DURING CONSTRUCTION. ALL DAMGES TO EXISTING UTILITIES SHALL BE REPAIRED AND PAID FOR BY THE CONTRACTOR.
9. WHEN TRENCH EXCAVATION IS CLOSE TO OR UNDER EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHEETING, SHORING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS AND SETTLEMENT AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS OR UNDER-PINNING TO FULLY PROTECT THEM FROM DAMAGE.
10. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION OR BETTER, ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, WALLS, FENCES, ETC. UNLESS PROVIDED FOR SPECIFICALLY IN THE PROPOSAL. DEMOLITION AND RESTORATION OF EXISTING ITEMS SHALL BE INCIDENTAL AND INCLUDED WITHIN THE AMOUNT PAID FOR UNCLASSIFIED TRENCH EXCAVATION.
11. ALL CONCRETE AND A.C. PAVEMENT TO BE TRENCHED OR RECONSTRUCTED SHALL BE SAW-CUT TO THE REQUIRED WIDTH PRIOR TO THE CONSTRUCTION.
12. PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE HONOLULU POLICE DEPARTMENT AND THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES-HISTORIC PRESERVATION DIVISION (692-8015). IN ADDITION, FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL INFORM THE CITY DEPARTMENT OF PLANNING PERMITTING, CIVIL ENGINEERING BRANCH.
13. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPT FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.
14. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM RUBBISH, DUST, NOISE, EROSION, ETC. THE WORK SHALL BE DONE IN CONFORMANCE WITH THE AIR AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
15. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS FROM APPROPRIATE GOVERNMENT AGENCIES.

SEWER NOTES: (PRIVATE)

- 1. ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPT. 1985, THE DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS, SEPT. 1984, CURRENT CITY PRACTICES AND REVISE ORDINANCES OF HONOLULU, 1990 AS AMENDED, AND THE DESIGN STANDARDS OF THE DEPARTMENT OF WASTEWATER MANAGEMENT VOL. 1, JULY 1986 CRUSHED ROCK CRADLE IS PERMITTED WHERE SOIL IS STABLE. IN AREAS OF UNSTABLE SOIL, THE DESIGNER OF RECORD ADN THE CONTRACTING OFFICER WILL DETERMINE THE PIPE SUPPORT REQUIRED.
2. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS RESEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACILITIES, INCLUDING AND AFFECTING SEWER LINES, IN THE PRESENCE OF THE WASTEWATER INSPECTOR AND EXERCISE PROPER CARE IN EXCAVATING THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGED UTILITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS SEWER SERVICE TO ALL AFFECTED AREAS DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP OF ANY SEWAGE SPILLS CAUSED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER AND STATE DEPARTMENT OF HEALTH AND UTILIZE APPROPRIATE SAMPLING AND ANALYZING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PUBLIC NOTIFICATIONS AND PRESS RELEASES.
5. THE CONTRACTOR SHALL INSTALL "RAINSTOPPER" MANHOLE INSERTS IN ALL NEW SEWER MANHOLES WITH TYPE "SA" FRAME AND COVER.
6. GEOTEXTILE FABRIC SHALL ENVELOP THE PIPE CRADLE AND PIPE FOR ALL SEWER LINES.

PUBLIC HEALTH, SAFETY AND CONVENIENCE NOTES

- 1. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE, AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF THE PUBLIC HEALTH AND SAFETY AND ENVIRONMENTAL QUALITY.
2. THE CONTRACTOR, AT HIS OWN EXPENSE SHALL KEEP THE PROJECT AND ITS SURROUNDING AREAS FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH. THE CITY MAY REQUIRE SUPPLEMENTARY MEASURES AS NECESSARY.
3. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION ACTIVITY SO AS TO CAUSE FALLING ROCK, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
4. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC. THE CONTRACTOR SHALL APPLY FOR A CONSTRUCTION PERMIT WITH A NOISE POLLUTION CONTROL PLAN IF NECESSARY.

EXCAVATION NOTES

- 1. PRIOR TO EXCAVATION, THE CONTRACTOR SHALL CONTACT HAWAII ONE CALL FOR VERIFICATION OF UNDERGROUND LINES, THE CONTRACTOR SHALL CALL THE HAWAII ONE CALL CENTER AT 866-423-7287 MINIMUM OF TEN (10) WORKING DAYS IN ADVANCE.

EROSION CONTROL AND BMP NOTES:

- 1. MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY DEMOLITION OR EARTH MOVING WORK IS INITIATED. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. INSTALL PERIMETER PROTECTION (SILT FENCE) AS SHOWN ON THE EROSION CONTROL PLAN.
3. CONSTRUCT TEMPORARY STABILIZED CONSTRUCTION ENTRANCE/EXIT AT LOCATIONS SHOWN ON THE EROSION CONTROL PLAN. ALL VEHICLES EXITING THE SITE ARE TO SUFFICIENTLY CLEANED OFF SO THAT DIRT OR DEBRIS IS NOT TRACKED OFF THE CONSTRUCTION SITE.
4. LOCATE STOCKPILES, INCLUDING WASTE AND SOIL, AWAY FROM CONCENTRATED DRAINAGE FLOWS, DRAINAGE SWALES AND INLETS. INSTALL PERIMETER PROTECTION (SILT FENCE), BERMS OR TRENCHES AROUND ERODIBLE MATERIAL STOCKPILES.
5. ALL EROSION CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY, FOR EXAMPLE, WEEKLY IN DRY PERIODS AND WITHIN 24-HOURS AFTER ANY RAINFALL OF 0.5 INCHES OR GREATER WITHIN A 24-HOUR PERIOD. DURING PROLONGED RAINFALL, DAILY CHECKING IS NECESSARY. THE CONTRACTOR SHALL MAINTAIN RECORDS OF CHECKS AND REPAIRS.
6. IF HEAVY RAINS ARE PREDICTED DURING A WORKDAY, ALL CONTROL MEASURES SHALL BE INSPECTED IMMEDIATELY AND REINFORCED AS NECESSARY.
7. CONTRACTOR SHALL REMOVE SEDIMENT FILTERS DURING ABOVE-NORMAL RAINFALL EVENTS AND REPLACE FILTER AFTER THE EVENT HAS PASSED.
8. CLEARING AND GRADING SHALL BE HELD TO THE MINIMUM NECESSARY. GRADING SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF THE CLEARED SURFACE AREA.
9. DUST CONTROL WITH WATER SPRAY (BY TRUCK OR TEMPORARY SPRINKLERS) SHALL BE APPLIED AS NEEDED. DO NOT OVERWATER.
10. A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON THE PROJECT SITE.
11. GOOD HOUSE KEEPING BEST MANAGEMENT PRACTICES:
11.1. MATERIAL MANAGEMENT PRACTICES SHALL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. AN EFFORT SHALL BE MADE TO STORE ONLY ENOUGH PRODUCT AS IS REQUIRED TO DO THE JOB.
11.2. ALL MATERIALS STORED ONSITE SHALL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE, UNDER COVER OR IN AN ENCLOSURE.
11.3. SUBSTANCES SHALL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
11.4. WHENEVER POSSIBLE, THE ENTIRE CONTAINER CONTENTS WILL BE USED UP PRIOR TO DISPOSAL OF THE CONTAINER.
11.5. ALL HAZARDOUS MATERIALS, FUEL, OIL AND CHEMICAL SPILLS SHALL BE STOPPED AND CLEANED UP WITH PROPER ABSORBENT MATERIALS. ABSORBENT MATERIAL SPILL KITS SHALL BE MAINTAINED ON-SITE.
11.6. THE CONTRACTOR SHALL CONDUCT A DAILY INSPECTION TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.
11.7. CONCRETE TRUCK CHUTE WASH WATER SHALL BE DISCHARGED TO A DESIGNATED AREA WHERE COMMINGLING WITH STORM WATER WILL BE PREVENTED BY LOCATING OUTSIDE OF DRAINAGEWAYS, CUT-OFF DITCH OR PERIMETER BERM. WATER SHALL NOT BE DISCHARGED INTO DRAINAGE SYSTEMS OR WATERS OF THE UNITED STATES. THE CONTRACTOR SHALL CLEAN THE DISPOSAL SITE AS REQUIRED.
12. SANITARY AND SEPTIC WASTES SHALL BE COLLECTED FROM ON-SITE FACILITIES ON A REGULAR BASIS BY A LICENSED HAULER. SANITARY AND SEPTIC FACILITIES SHALL NOT BE LOCATED IN OR NEAR WATERCOURSES.
13. VEHICLE AND EQUIPMENT MAINTENANCE AND FUELING SHALL BE DONE OFF-SITE (WHERE AT ALL POSSIBLE)
14. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE TRAINED ON THE BEST MANAGEMENT PRACTICES.
15. PERIMETER PROTECTION (FILTER SOCK) SHALL BE CLEARED OF SILT IMMEDIATELY FOLLOWING THE END OF ANY RAINFALL THAT CAUSES SILT BUILDUP OR WHEN DEPTH REACHES 1/3 OF PERIMETER PROTECTION HEIGHT.
16. STABILIZATION SHALL BE ACCOMPLISHED BY PERMANENTLY PROTECTING THE DISTURBED SOIL SURFACE FROM RAINFALL IMPACTS AND RUNOFF WITH GRASSING. FOR STABILIZATION WITH GRASSING, TEMPORARY IRRIGATION SHALL BE INSTALLED TO FACILITATE GROWTH. DO NOT OVERWATER.
17. FERTILIZER AND PESTICIDE APPLICATION SHALL NOT OCCUR IF HEAVY RAINS ARE ANTICIPATED DURING THE WORKDAY, OR DURING HEAVY RAINS.
18. EROSION CONTROL MEASURES MAY BE REMOVED IN AREAS THAT ARE STABILIZED AND COMPLETED.
19. EROSION CONTROL AND BMPs ARE THE MINIMUM REQUIREMENTS FOR THE PROJECT. CONTRACTOR MAY INSTALL AND IMPLEMENT NEW/BETTER PRODUCTS TO CONTROL AND PREVENT EROSION AND POLLUTANTS FROM THE SITE.
20. CONTRACTOR SHALL NOT STOCKPILE MATERIALS IN CITY ROW.

Table with 4 columns: Abbreviation, Full Name, Abbreviation, Full Name. Includes entries like Ø DIAMETER, A AIR, A.C.A. ASPHALT CONCRETE, A/C AIR CONDITIONING, APPROX. APPROXIMATE, APT. APARTMENT, ARV AIR RELEASE VALVE, AVG. AVERAGE, AVE. AVENUE, B BYPASS, BC BOTTOM CURB, BFP BACK FLOW PREVENTER, BLDG. BUILDING, B.O.D. BIOCHEMICAL OXYGEN DEMAND, BOT BOTTOM, BW BOTTOM WALL, BWS BOARD OF WATER SUPPLY, C.L. CENTERLINE, CMU CONCRETE MASONRY UNIT, C.O. CLEAN OUT, COL. COLUMN, COMM. COMMUNICATION, C/CONC. CONCRETE, CONT. CONTINUATION, C.Y. CUBIC YARD, D DIAMETER OR DRAIN, DET. DETAIL, D.I. DRAIN INLET, D-BOX DISTRIBUTION BOX, DPW DEPARTMENT OF PUBLIC WORKS, DWG. DRAWING, E EAST, E/ELEC. ELECTRIC, ELEV/ELEV ELEVATION, EMH ELECTRIC MANHOLE, EP ELECTRIC POLE, EXIST. EXISTING, FG FINISH GRADE, FM FORCE MAIN, FRP FIBERGLASS REINFORCE PLASTIC, FT FEET, G GAS, GAL. GALLONS, GND. GROUND, G.P. GUY POLE/GATE POST, GPD GALLONS PER DAY, GPM GALLONS PER MINUTE, GV GATE VALVE, G.W. GUY WIRE, HAR HAWAII ADMINISTRATIVE RULES, HI/HT. HEIGHT, H.B. HOSE BUB, HECO HAWAIIAN ELECTRIC COMPANY, HDPE HIGH-DENSITY POLYETHYLENE, HP HORSEPOWER, HPHA HAWAII PUBLIC HOUSING AUTHORITY, HTC. HAWAIIAN TELEPHONE COMPANY, ICV IRRIGATION CONTROL VALVE, I.D. INNER DIAMETER, INV. INVERT, IRR IRRIGATION, L LENGTH, LAT LATERAL, LB POUND, LF LINEAR FOOT, LP. LIGHT/LAMP POLE, MAX. MAXIMUM, MGD MILLION GALLONS PER DAY, MH MANHOLE, MIN. MINIMUM/MINUTE, MON. MONUMENT, N NORH, O/H OVERHEAD ELECTRIC LINE, O.C. ON CENTER, P/PAVT. PAVEMENT, P PROPERTY LINE, PSI POUND PER SQUARE INCH, PVC POLYVINYL CHLORIDE, Qo PIPE CAPACITY, Qr DESIGN PEAK FLOW, RCP REINFORCED CONCRETE PIPE, S SEWER, SDWB SAFE DRINKING WATER BRANCH, SF SQUARE FEET, SHT. SHEET, S.L. SEWERLINE/STREETLIGHT, SMH SEWER MANHOLE, ST.M. STREET, STA. STATION, STD. STANDARD, S.T.P. SEWAGE TREATMENT PLANT, SW SIDEWALK, STRUCT. STRUCTURAL, SYM. SYMMETRICAL, TC TOP CURB, TDH TOTAL DYNAMIC HEAD, T/TEL. TELEPHONE, TEMP. TEMPORARY, TMK TAX MAP KEY, TMH TELEPHONE MANHOLE, TP TOP PIPE, TS TOP STEM, T.S.S. TOTSL SUSPENDED SOLIDS, TV TOP VALVE, TW TOP WALL, TYP. TYPICAL, U.P. UTILITY POLE, U.P./S.L. UTILITY POLE W/ STREET LIGHT, VFD VARIABLE FREQUENCY DRIVE, W WATER/WIDTH, WL WATERLINE, WM WATER METER, WV WATER VALVE BOX

D

C

Revised October 2014

B

A



Revision Number/ Description

Project Name: CHING YOUNG VILLAGE WWTP REPLACEMENT
5-5190 KUHIU HIGHWAY, HANAIEI, KAUAI, HAWAII 96714
TMK: (4) 5-5-002:040

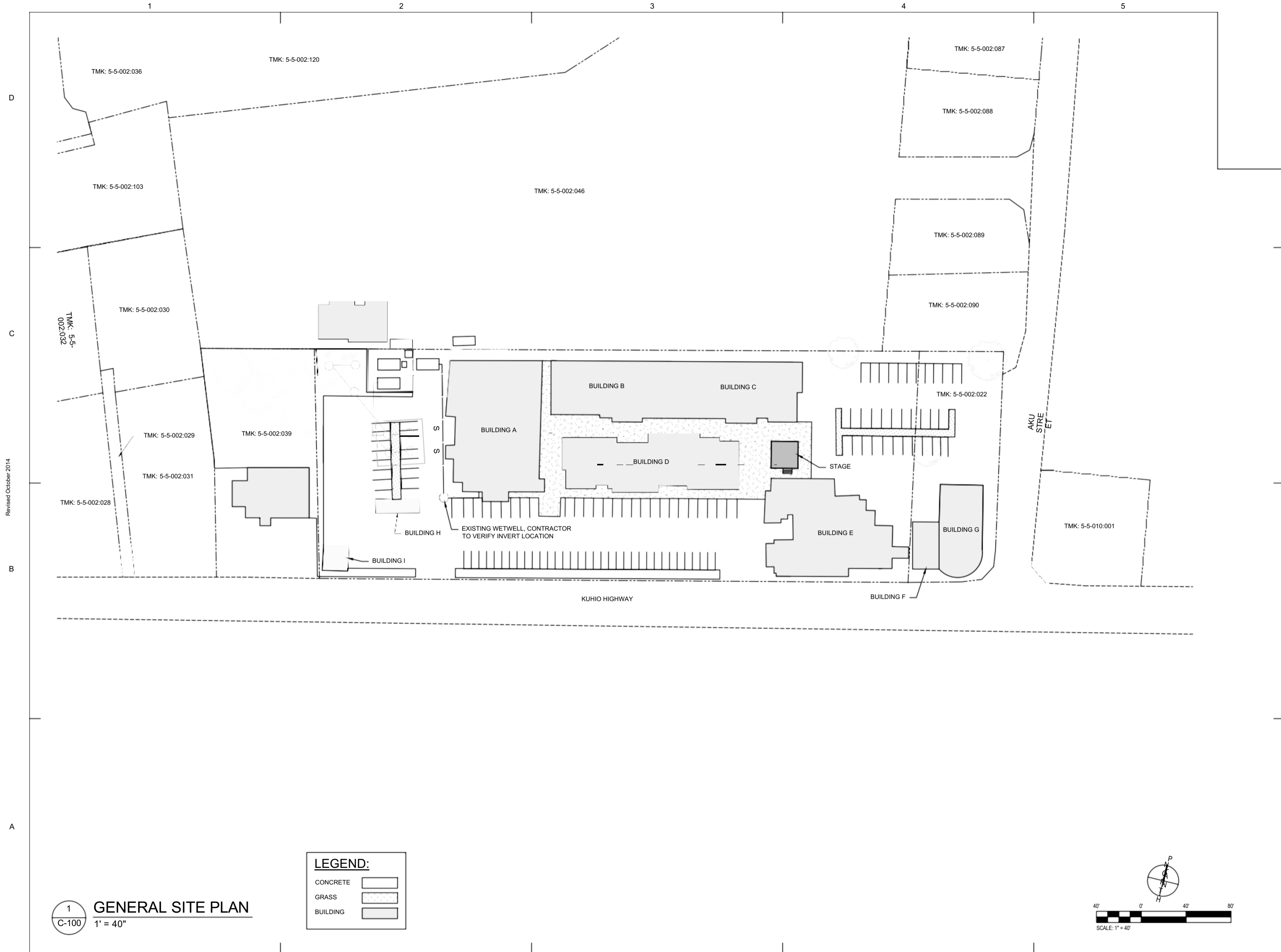
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Drawing Number: T-002

Sheet No. ___ of ___

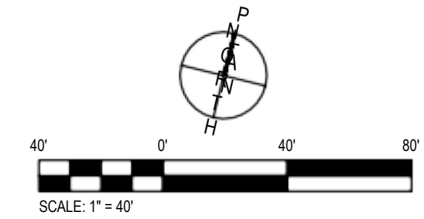
NOT FOR CONSTRUCTION: PERMIT SET



1
C-100
GENERAL SITE PLAN
1" = 40"

LEGEND:

CONCRETE	
GRASS	
BUILDING	



LAULEA
ENGINEERING, LLC

Revision Number/ Description

--	--

Project Name
**CHING YOUNG VILLAGE
WWTP REPLACEMENT**
5-5190 KUHIO HIGHWAY,
HANAIEI, KAUAI, HAWAII 96714
TMK: (4) 5-5-002:040

Drawing Title
GENERAL SITE PLAN

Project Number 22027_22038	Date JULY 26, 2023	
Drawn AC	Checked WW	Designed EC

Drawing Number
C-100
Sheet No. ___ of ___

NOT FOR CONSTRUCTION: PERMIT SET

1

2

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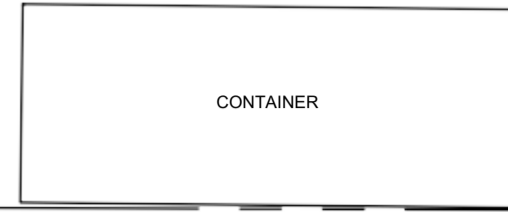
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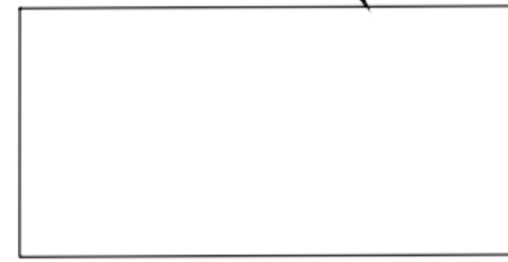
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Revised October 2014



INSTALL NEW TANK INCLUDING PROCESS TREATMENT STAGE, HOPPER BOTTOM SETTLING TANK, 8000 GALLON EQ TANK, SOLIDS HOLDING TANK, AND PROCESS BLOWERS

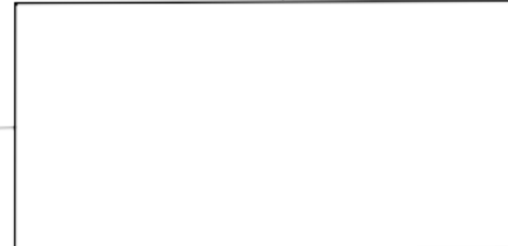


GATE

INSTALL NEW BAR SCREEN

GATE

INSTALL NEW BACKUP EQ TANK



CMU WALL

INSTALL NEW 5000 GALLON SUBSURFACE PRELOADER TANK



S

S

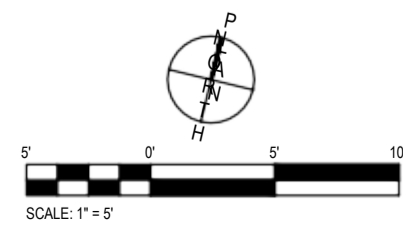
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LEGEND:

CONCRETE	
GRASS	
BUILDING	

1
C-101 **WWTP SITE PLAN**
1" = 5"



LAULEA
ENGINEERING, LLC

Revision Number/ Description

**CHING YOUNG VILLAGE
WWTP REPLACEMENT**

5-5190 KUHIO HIGHWAY,
HANAIEI, KAUAI, HAWAII 96714

TMK: (4) 5-5-002:040

Drawing Title

WWTP SITE PLAN

Project Number
22027_22038

Date
JULY 26, 2023

Drawn
AC

Checked
WW

Designed
EC

Drawing Number

C-101

Sheet No. ___ of ___

NOT FOR CONSTRUCTION: PERMIT SET

Attachment B- SSI Aeration Treatment Package Preliminary Design/Equipment Summary

APPENDIX D
Manufacturers Literature



SSI EEVolved™ MBBR

**Oahu, HI – Ching Young Village WWTP
0.15 MGD**

Submitted Date: May 8th, 2023

Type: STP, New, MBBR

**Prepared by: Ian Arndt, P.E.
Email: ian@ssiaeration.com**

**WWW.SSIAERATION.COM
INFO@SSIAERATION.COM**

**Main Office:
SSI Aeration, Inc. 4
Tucker Drive
Poughkeepsie, NY 12603**

INTRODUCTION TO SSI

SSI was incorporated in 1995 with the goal of providing innovative, cost-conscious wastewater treatment solutions. SSI ensures a seamless continuum of project management, engineering and understanding of plant. As an industry leader for product innovation and streamlined integration, the choice to select SSI for your application links you with some of the highest performance and highest efficiency solutions available.

With references in the largest in the largest cities in the world, SSI is a trusted source for wastewater treatment. With a strong commitment to research and development, SSI's mission has been and will continue to be:

- Advance Process Technology through Innovation
- Provide Superior Quality Equipment
- Provide Superior Service
- Provide Superior Engineering and Process Expertise
- Provide Superior Process Understanding and Integration

Sincerely,

The Team at Stamford Scientific International

SSI's mission has been and will continue to be:

- Advance Process Technology through Innovation
- Provide Superior Quality Equipment
- Provide Superior Service
- Provide Superior Engineering and Process Expertise
- Provide Superior Process Understanding and Integration

Worldwide Presence

Our US headquarters is in Poughkeepsie, New York and holds our engineering management, sales, and administration offices. We also have a 52,000 square foot manufacturing facility in New York.

Globally we also have production facilities in South Korea, Italy, and India. Our global sales team is located around the globe and we are proud to have offices in the US, Milan Italy, India, Dubai UAE, and Shanghai China.

EEVolved™ MBBR

Rethink MBBR. SSI has created the EEVolved™ MBBR: Energy Efficient, Volumetrically Optimized, Low Volatile Effluent Discharge MBBR.



The SSI Advantage

EEVolved MBBR for biological treatment utilizes innovative biofilm carrier technology with advanced integration to provide the most efficient MBBR process available.

The SSI Design

EEVolved MBBR provides the lowest process HRT of any biological treatment process, enabling the use of advanced SSI aeration technologies. By combining advanced multi-layer PTFE fine bubble aeration with SSI biofilm carriers, SSI provides the highest volumetric efficiency of any biological treatment process available (compared to MBR, SBR, CAS, and Granular technologies).



Engineered to Increase

- Treatment Efficiency
- Hydraulic Capacity
- Resiliency
- Process Versatility
- Process Life Span
- Secondary Clarifier Efficiency

Engineered to Reduce

- Energy and Operating Cost
- Reactor Volume and HRT
- Control Complexity
- Operator Intervention
- Maintenance

DESIGN CONCEPT

This proposal is generated using SSI's proprietary MBBR modeling program and is to be considered on preliminary basis unless otherwise stated. Design may be subject to modification. Detailed engineering will be provided at time of Order or following mutually agreed engineering contract. Please note that this proposal is focused on the Core MBBR (and secondary solids separation where required). Pretreatment, primary treatment and tertiary treatment are not currently included and assumed "by others" for the time being. SSI has ability to provide complete WWTP design and supply if required. Please find the preliminary design and proposal herein. Terms and Conditions are preliminary and may be subject to change prior to order confirmation. Process or Performance guarantees, when required, may be subject to price adjustment.

SSI System advantages

- Reduced treatment complexity
- Minimal control required
- Attached growth provides stability and will not wash out
- Reduced sludge production
- High bacterial population for increased volumetric efficiency
- Lowest energy MBBR (vs competitor MBBR systems)
- Typical Life > 20 years
- Quickest MBBR installation and startup period (vs competitor MBBR systems)
- Designed and develop by SSI Engineers (not 3rd parties)



Figure 1: SSI Biofilm Carrier MBBR/IFAS systems

PRELIMINARY MBBR DESIGN CONCEPT

*assumed values

Design Requirements/Assumptions:

- Primary treatment must be sufficient to reduce the TSS and FOG to adequate levels before entering the biological reactor.
- The information provided is assumed to be the maximum design values.
- In the absence of information, it is assumed that the water quality is sufficient for biological treatment including, but not limited to the following requirements:
 1. *Sufficient micronutrient is available to satisfy minimum biological requirements, as follows: 100 BOD : 5-10 N : 1-3 P*
 2. *pH is stabilized between 6.8-8*
 3. *BOD and COD are readily biodegradable*
 4. *No toxic or inhibitory compounds present*
 5. *All effluent values are assumed to be 24-hour composite, weekly average of clarified effluent*



Project Name
Project Location
Rep

Ching Young Village MBBR
Oahu, HI

Project Engineer
SSI Engineer
Date

Laulea
IMA
5/8/2023

Influent Parameters					
Parameter	Value	Units	Value	Units	Notes
BOD5	800	mg/l	221	kg/d	
COD	1600	mg/l	441	kg/d	
TSS	800	mg/l	221	kg/d	
NH3	42	mg/l	12	kg/d	
TKN	60	mg/l	17	kg/d	
TP	8	mg/l	2	kg/d	
NO(x)	0	mg/l	0	kg/d	
FOG	40	mg/l	11	kg/d	
Alkalinity	300	mg/L			
pH	7	unitless			
Avg Flow	0.015	MGD	56.83	m3/d	
Max Mo.	0.015	MGD	56.83	m3/d	
Peak Day	0.03	MGD	113.66	m3/d	

Effluent Requirements					
Parameter	Value	Units	Value	Units	Notes
BOD5	30	mg/l		kg/d	30/30 effluent from clarifier
COD		mg/l		kg/d	
TSS	30	mg/l		kg/d	
NH3		mg/l		kg/d	
TKN		mg/l		kg/d	
TP		mg/l		kg/d	
NO(x)		mg/l		kg/d	
FOG		mg/l		kg/d	

Site Conditions					
Parameter	Value	Units	Value	Units	Notes
Elevation	100	ftasl	30.49	masl	
Min Air Temp	20	F	-6.67	C	
Max Air Temp	100	F	37.78	C	
Max WW Temp	77	F	25	C	
Min WW Temp	77	F	25	C	

Media Loading Rates					
Parameter	Value	Units	Value	Units	Notes
BOD Media	8	m3	575	m2/m3	Volume and SSA
TKN Media	0	m3	575	m2/m3	Volume and SSA
NOx Media	0	m3	575	m2/m3	Volume and SSA
Total Media Vol	8	m3			Sum of Media Volumes
BOD SALR	9.52	g/m2/d	96.3%	% Removed	
TKN SALR	0	m3		% Removed	
NOx SALR		m3		% Removed	

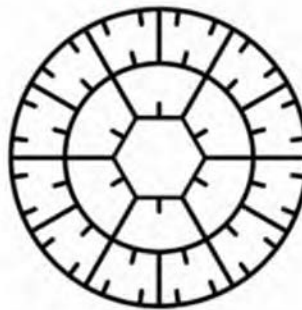
Basin Dimensions					
Parameter	Value	Units	Value	Units	Notes
No. of Trains	1	Ea			
No. of Stages	2	Ea			
Stage Width	6	ft	1.83	m	
Stage Length	6	ft	1.83	m	
Stage SWD	10.5	ft	3.20	m	
Stage Volume	10.71	m3	4.52	HRT at MMF	
Train Volume	21.42	m3	9.05	HRT at MMF	
Total Volume	21.42	m3	9.05	HRT at MMF	
Media Fill Ratio	37%	%			

Biofilm Carrier Selection

The EEVE675™ has been selected for the Ono Vista WWTP treatment process,

EEVE675™ Moving Media Data Sheet

EEVE675™ Media



Physical Properties:

Material: Virgin High Density Polyethylene (HDPE)

Specific Gravity: 0.96 +/- .01

Bulk Density: 125 +/- 5 Kg/m³

Media Dimensions

Outer Diameter: 25 mm

Cylinder Length: 12 mm

Performance Characteristics

Total Surface Area: 675 m²/m³

Protected Surface Area: 575 m²/m³

Figure 2: EEVE675 Data Sheet

Media Retention Screens

Media retention screens have been designed to minimize head loss between tanks and to optimize the movement of water and media throughout the tanks and around the screens. Screens are made of stainless-steel wedge wire. One end will be capped and the other will have a flange for connection to the tank.

Only effluent screens have been included in this proposal. If you plan to have a drain or overflow built into your tank, please talk to SSI about providing media retention screens for those connections as well.

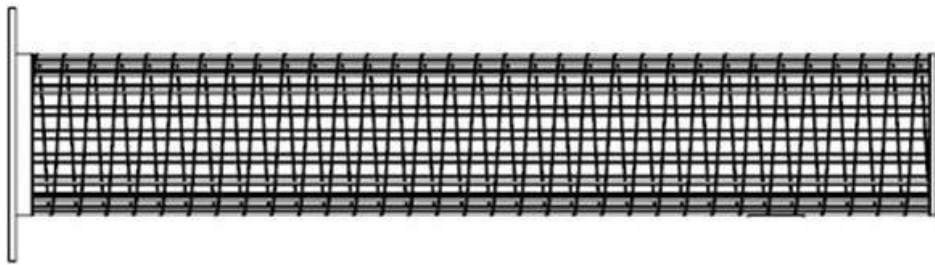


Figure 3: Example Media Retention Screen

MBBR Aeration System

SSI's PTFE/PEEK fine bubble aeration systems are the perfect match with MBBR systems. The PTFE/PEEK coating reduces fouling and creep and minimizes required maintenance, all while creating a more efficient MBBR system.

SSI's fine bubble aeration systems are the key to our EEVolved™ MBBR systems, which is why we call them “Energy Efficient, Volumetrically Optimized, Low Volatile Effluent Discharge” MBBRs.

A moisture purge system is used in all SSI fine bubble aeration systems to remove condensate from the piping system. Purging entrained water helps ensure even air distribution to all diffusers in a grid.



Figure 4: Example ECD Diffusers with PTFE Membranes

SCOPE OF SUPPLY AND PRICE

SSI's scope of supply and price are shown in the table below.

Table 3: SSI Scope of Supply – EEVolved™ MBBR System

#	Equipment	Quantity
1	<p>MBBR Biofilm Carriers EEVE675™ Media made from virgin HDPE of prime resin, USA production</p> <ul style="list-style-type: none"> Carrier design shall allow for complete mix conditions within 6-8 hours of installation The biofilm carrier shall provide a circular disk with diameter of 25mm (+/- 2%) and shall provide a cylinder length 12mm (+/- 2%). The effective open area shall be no less than 87.5%. Internal protected surface area shall be 575 m²/m³ Acceptable bulk density of carrier shall be > 125 kgs/m³ Tensile strength shall be no less than 300 kg/cm² Elongation at break shall be no less than 500% Flexural modulus shall be no less than 12,500 kg/cm² Average wall thickness shall be > 0.3 mm Media packaged in 2.25m³ sacks + pallets, having 54m³ per container load. 	8 m ³
2	<p>MBBR Full Fine Bubble Aeration Full System supply includes ECD270-2-P 9-inch diffusers with grommet connections and 3" PVC piping with 304SS drop pipe.</p>	TBD pcs (MBBR) TBD pcs (Solids Holding)
3	<p>Effluent Retention Screens 1 Wedge wire screens with minimum 80% opening, welded end cap, and flanged ANSI end for direct wall mount per tank. (2 total)</p>	2
4	<p>Blowers – Process and Solids Holding</p>	1 Lot

Solids Holding and EQ Tank Blowers (2 duty, 1 standby) at 32 SCFM, 4.91 PSIG

QTY: 3 - Hardy Pro-Pack Model HPP-S2L-2HP-1.5-1.0 Blower Package complete with:

- 1 - MD-Kinney 3002 CP Series Bi-Lobe DSL Blower, or equal
- 1 - 2 HP TEFC, 3/60/230-460 Volt premium efficient electric motor, VFD Ready
- 1 - Elevated structural steel common base
- 1 - **Direct drive**, Dodge Raptor Coupling, with enclosed drive guard
- 1 - Inlet filter-silencer, 1.5" with filter restriction indicator
- 1 - Discharge silencer, 1.0"
- 1 - Discharge check valve with silicone seal and stainless-steel spring, 1.0" NPT
- 1 - Discharge butterfly valve, 1.0" with locking handle
 - Discharge piping will have individual stubs for air outlet to the tank(s)
- 1 - Discharge expansion joint, 1.0" rated for 300 degrees F
- 1 - Discharge pressure relief valve, weight loaded, 1.0", set @ 6.0 PSIG
- 1 - Discharge pressure gauge, liquid filled, 0-15 PSIG
- 1 - Discharge temperature gauge
- 1 - **Oil drain hose kit**, to simplify oil change efforts
- 1 - **First year of supplies**: blower oil (OIL021, 3 quarts), filter elements (FTC017, 3)
- 1 - Initial fill of oil for blower start-up
- 1 - Set of four 1" Thick vibration pads
- 1 - Prime and finish paint the package with Blue Industrial Enamel, guard to be yellow
- 1 - Labor to assemble & provide a mechanical run test prior to shipment
- 1 - 12-month warranty from startup

BLOWER PERFORMANCE

Volume, Design	32	SCFM	Est. Noise w/Enclosure	66	dBa
Δ Pressure	4.91	PSIG	Inlet Temp	85	Degrees F
Speed	1,435	RPM	Discharge Temp	154	Degrees F
Power Required	1.68	BHP	Elevation	100	FTASL
Volume, Max	36	SCFM	Inlet Humidity	50	%

Sound Enclosure/Stadium

QTY: 1 - Hardy Pro-Closure Sound Stadium, with:

- Galvanneal steel construction (108" Length x 84" Width x 96" Height)
- Powder coated exterior surfaces
- Interior sound insulating material
- Locking service access panels on four sides of the enclosure
- 120 Volt thermostatically controlled powered exhaust fan
- Labor to mount blower package within the enclosure
- Labor to mount customer-supplied controls within the enclosure
- **Sound enclosure light kit with 120V outlet**, to simplify maintenance tasks in dark conditions

<p>5</p>	<p>Control Panel System: 208/3/60 Specs referenced:</p> <p><u>QTY</u> <u>DESCRIPTION (N4X VFD Master Control Panel)</u></p> <p>1 N4X VFD Master Control Panel One (1) N4X 304 stainless steel wall mounted enclosure with sub panel One (1) Steel mounting tab kit for wall mounted enclosures One (1) Enclosure cooling fans and exhaust grilles for enclosure cooling in black plastic finish Two (2) 304 Stainless steel rain hoods for N4X enclosures cooling fans One (1) Enclosure thermostat for enclosure cooling One (1) N4X HMI Cover for HMI unit One (1) SQD 35KA rated 80A molded main breaker with mechanism, shaft, and handle Two (2) Allen Bradley 20A max MCPB for 5HP drives Two (2) Allen Bradley 16A max MCPB for 2HP drives One (1) SQD 240V/480V to 120V 750VA control transformer and fusing One (1) Allen Bradley 24VDC Power Supply One (1) Allen Bradley power distribution block Two (2) Allen Bradley 240V PowerFlex 525 5HP HD drives Two (2) Allen Bradley 240V PowerFlex 525 3HP HD drives One (1) Allen Bradley L24ER PLC Package One (1) 1769 4 Point AI Card One (1) Allen Bradley L24ER Processor One (1) 1769 4 Point AO Card One (1) Allen Bradley PanelView Performance 7 7" HMI module One (1) Weidmuller 5-Port Ethernet switch One (1) EWON Flexy Four (4) Allen Bradley 22mm Pilot lights (Green Run, indication for each drive) Four (4) Allen Bradley 22mm HOA selector switch for each VFD One (1) Sensa phone auto dialer unit Fusing, Terminal blocks, and relays and timers as required UL 508A Listed Electrical circuit diagram with BOM Engineering Submittals Manufacturing Factory System Test</p>	<p>1 Lot</p>
<p>6</p>	<p>Package Treatment Tank Package treatment tank with total outside dimensions of ~28' L x 12' W x 12' H. Treatment tank shall include process treatment stage, hopper bottom settling tank, 8000gal EQ tank, and solids holding tank.</p>	<p>1 Lot</p>
<p style="text-align: right;">Total, EX Works USA (USD)</p>		<p><u>\$590,600.00</u></p>



Project Name
Project Location
Rep

Ching Young Village MBBR
Oahu, HI

Project Engineer
SSI Engineer
Date

Laulea
IMA
5/8/2023

Equipment Summary

MBBR Blowers

Equipment	Power	Units	Qty	Units	Notes
Process Blower	5	HP	1	Ea	1 Duty 1 standby
Solids Blower	2	HP	2	Ea	2 Duty 1 standby

9 Total HP 6.7113 Total kW

Power Cost \$ 0.44 \$/kWh

Annual Blower Power Cost With SSI Fine Bubble Aeration Equipped MBBR \$ 25,868.03
Annual Blower Power Cost With Traditional Coarse Bubble Aeration Equipped MBBR* \$ 51,736.07

*Assuming 1%/ft OTE with Coarse Bubble Aeration vs 2%/ft OTE with Fine bubble Aeration

Annual Power Savings Using SSIMBBRw/FBAeration \$ 25,868.03

Misc. Equipment

Equipment	Power	Units	Hr/day Uptime	Units	Notes

0.00 Total HP 0.00 Total kW

Annual Power Cost of Misc Equipment \$ -

Total Annual Power Cost of SSI Equipment \$ 25,868.03

Net Present Value of Power Cost Savings vs Coarse Bubble Equipped MBBR* \$ 433,364.12

*Assuming discount rate of 6% and 20 yr equipment life

Typical Maintenance

Maintenance Activity	Value	Unit	Value	Unit	Notes
Diffuser air bumping	104	Hr/yr			2 manhour/wk
Blower Oil Change	4	Hr/yr	1200	\$/yr	\$75/quarter/blower
Sludge Wasting	52	hr/yr			1 manhour/wk

160 Rqd Manhours \$ 1,200.00 Maintenance Item Cost

Assumed Labor Cost \$ 40.00 \$/Manhour

Total Annual O&M Cost of SSI Equipme \$ 33,468.03

TERMS AND CONDITIONS

1. Prices are provided in US Dollars (USD) and are valid for 15-days from date of submittal.
2. Electronic files: approval submittals, installation dwgs, shop dwgs, technical and relevant data, applicable calculations, equipment cut sheets, operation and maintenance manuals, etc. will be provided within 4-6-weeks after receipt of mutually accepted Purchase Order providing all necessary information to prepare submittal documents has been provided to SSI. A fee of \$225.00 USD will be charged per additional hardcopy submittal set required, or for any additional documentation or hard copies required, depending nature and size.
3. Prices are Ex Works from the manufacturing facility. Freight/Taxes/Duties/Clearance is not included.
4. Unless otherwise noted all shipments are supplied loose for field assembly and installation.
5. Field assembly, installation, are not included within this contract price. All items are to be installed and inspected by contractor within 10-days of receipt.
6. SSI exclusions:
 - i. Any items not specifically defined herein
 - ii. Offloading, taxes, customs duties, brokerage, etc.
 - iii. Assembly and installation other than previous defined above
 - iv. Civil and structural engineering not included.
 - v. Operation of equipment not included.
 - vi. Electrical including motor control centers
7. Payment terms are subject to approval of SSI's Financial Department.
 - i. 30% down payment with Approved Order.
 - ii. 30% payment with submittal of engineering details.
 - iii. 40% upon shipment, at site.
8. SSI Standard Terms and Conditions apply. Unless otherwise noted SSI's standard warranty/guarantee on the equipment supplied is for 18 months from the date of shipment or 12 months after the start up whichever occurs first. Warranty covers the workmanship and material of the listed items only. Any costs direct or indirect for transportation, site work, site repair/adjustments etc., are not covered under warranty. Further warranty is valid only when SSI or Its Representative/Associates approve/certify the installation. However as the inspection is done randomly certification on installation does not make SSI liable or responsible for any direct or indirect installation failure(s). Products manufactured by Seller are warranted to be free from defects in materials or workmanship for 18 months from date of shipment or 12 months from the date of startup, whichever comes first. Parts found to be defective in materials or workmanship will be repaired or replaced without charge, F.O.B. original point of shipment. The forgoing warranty is in lieu of and excludes all other warranties expressed or implied (including any warranty of merchantability or fitness or purpose). The responsibility of the Seller is limited to the cost of the defective part. Wear caused by faulty maintenance or operation shall not constitute defects. Elastomeric components damaged as a result of maintenance activities, excessive airflow, foreign debris in the process solution, or excessive exposure to direct ultraviolet and thermal radiation shall



be excluded. Decomposition by chemical action and chemical precipitate shall not constitute defects. Claims for defective, damaged or improper material or for shortages will not be allowed unless written notice specifying the nature and extent of the defect, damage or shortage is received in the Seller's office within fourteen (14) days from delivery. Seller assumes no responsibility of expense for repairs made on equipment sold by it to Buyer when such repairs are done outside Seller's factory facilities without its written consent. In all cases, a Start-Up certificate issued by SSI is for general conformance to the Manufacturer's installation instructions only after audit for work performed. However, in no cases, SSI can audit 100% of all work performed by others and cannot guarantee their work to fully meet our installation instructions. Warranty for installation labor and services provided by others shall be covered by the warranty of the entity performing those services. Failure by the Installer to fully meet our installation instructions and requirements may result in installation errors which may lead to equipment failure, for which Seller shall not be liable. Notwithstanding anything to the contrary, neither party shall be liable to each other for any consequential, incidental, special, punitive, or other indirect damages, and Seller's total liability arising at any time for the sale and/or use of goods and/or services shall not exceed 100% of the value of this purchase order in aggregate. This shall apply to SSI scope of supply.



SSI – SSI Aeration, Inc. Standard Terms and Conditions of Sale

1. **General:** All products and services offered for sale by Stamford Scientific International, Inc. (hereinafter "Seller") or its subsidiaries or through its distributors or sales representatives are sold subject to the terms and conditions stated herein. This offer expressly limits acceptance to the terms hereof and any additional, different or inconsistent terms proposed by Buyer, whether in writing or otherwise, are hereby objected to and rejected and Seller shall not be bound thereby unless expressly agreed in a writing signed by an officer of the Seller that such terms and conditions shall supersede those contained herein.
2. **Estimates and Quotations:** All prices are subject to adjustment on account of specifications, quantities, shipment arrangements or other terms and conditions, which are not part of the original price quotation. Written estimates issued by the Seller will be valid for 30 days only. Products are sold at prices in effect at the time the order is taken. The company reserves the right to change prices without notice when necessary.
3. **Terms and Method of Payment:** For Buyers with established credit, payment of accounts due must be made within 30 days of shipment FOB Seller facility or 30 days after the goods are ready to ship and Buyer is notified of same. Seller may make partial billings of the contract price or invoice as various components of the equipment are shipped. Partial payments are expected to be made according to partial goods shipped. Custom built and special large orders shall require deposits in advance of production together with progress payments. For Buyers without credit, payment will be by company check, bank draft, Visa or Mastercard, telegraphic transfer or irrevocable letter of credit at time of order or progress payments according to quote offer.
The Buyer shall not be entitled to withhold payment of any sums due to the Seller by reason of any disputed claim by the customer relating to any goods or deliveries. If Buyer fails to make payment by the due dates then without prejudice to any other rights of the Seller: The Seller shall be entitled to suspend all or any other deliveries to be made under that or any other contract with the Buyer and in such event the Buyer shall not in any respect be released from its obligations to the Seller under that or any such other contract. The Seller shall also be entitled to treat the relevant contract or any other contract with the Buyer as having been terminated by the Buyer and to claim damages for breach of contract accordingly.
4. **Taxes:** Product prices do not include taxes. The amount of any present or future sales, use, excise, value-added or similar tax if applicable to the sale shall be paid by the Buyer unless a tax exemption certificate acceptable to the tax authorities is approved. If Seller is required to pay any such tax, fee or charge, Buyer shall reimburse Seller therefor.
5. **Delays in Delivery and Force Majeure:** All quoted delivery dates are approximate. The Seller will make commercially reasonable efforts to meet any delivery date(s) quoted in the agreement. However, under no circumstances shall the Seller be liable to Buyer for any delay in shipment or failure to meet any quoted delivery date(s) or other terms in the agreement due to unforeseen circumstances or due to a cause beyond its control. Examples of such causes are acts of God, wars, riots, embargoes, acts of civil or military authorities, fires, floods, accidents, strikes, transportation delays, inability to obtain materials or supplies, interruption for any reason in the manufacture of products by Seller's suppliers or other causes not within Seller's control.
6. **Warranty/Repairs:** Products manufactured by Seller are warranted to be free from defects in materials or workmanship for 18 months from date of shipment or 12 months from the date of start up, whichever comes first. Parts found to be defective in materials or workmanship will be repaired or replaced without charge, F.O.B. original point of shipment. **The forgoing warranty is in lieu of and excludes all other warranties expressed or implied (including any warranty of merchantability or fitness for a particular purpose)**. The responsibility of the Seller is limited to the cost of the defective part. Wear caused by faulty maintenance or operation shall not constitute defects. Elastomeric components damaged as a result of maintenance activities, excessive airflow, foreign debris in the process solution, or excessive exposure to direct ultraviolet and thermal radiation shall be excluded. Decomposition by chemical action and chemical precipitate shall not constitute defects.

Claims for defective, damaged or improper material or for shortages will not be allowed unless written notice specifying the nature and extent of the defect, damage or shortage is received in the Seller's office within fourteen (14) days from delivery. Seller assumes no responsibility of expense for repairs made on equipment sold by it to Buyer when such repairs are done outside Seller's factory facilities without its written consent.

In all cases, a Start-Up certificate issued by SSI is for general conformance to the Manufacturer's installation instructions only after audit for work performed. However, in no cases, can SSI audit 100% of all work performed by others and SSI cannot guarantee their work to fully meet our installation instructions. Warranty for installation labor and services provided by others shall be covered by the warranty of the entity performing those services. Failure by the Installer to fully meet our installation instructions and requirements may result in installation errors which may lead to equipment failure, for which Seller shall not be liable.
7. **Cancellation and Returns Policy:** (A) Cancellations: Any request for order cancellation, rescheduling or modification by Buyer must be made in writing and such action must be approved in writing by an officer of Seller. Such request should be made to Seller at least four (4) weeks from scheduled shipment date in order to be considered. Such cancellation, rescheduling or modification shall be subject to the payment of reasonable cancellation charges, which shall include but not be limited to expenses already incurred for labor and material costs, commitments made by Seller and a reasonable profit. (B) Returns: Any request for product return by Buyer must be made in writing. Returns of products will not be accepted for any reason without prior written consent of Seller and issuance of a Return Material Authorization (RMA) number. Return of products must be shipped freight prepaid by Buyer. Seller will not accept freight charges. Returns may be subject to a 15% restocking fee and any other reasonable charges. Returns made without obtaining prior authorization shall be returned to sender at Buyer's expense. Custom made goods may not be returned under any circumstance
8. **Cost Escalation:** SSI Aeration, Inc. has priced the job according to existing market conditions and costs at the time of quote. Due to the current unpredictability of the market and wide fluctuations and increases in the price of stainless steel, carbon steel, PVC components we are experiencing in very short time frames, the sales price of the equipment might be subject to escalation in price in the event there are delays to approve submittal, delays in delivery schedule and/or release to manufacture beyond what was quoted and beyond Seller's control. In the event that there is a significant increase of material or freight occurring during the performance of the contract, the contract sum and/or time of completion shall be equitably adjusted by Change order. A change in price will be considered significant when the overall cost of the system increases by 10% or higher.

Escalation shall be based upon the increase in the Producer Price Index, U.S Department of Labor, Bureau of Labor Statistics-Group: Machinery and Equipment: Special Industry Machinery and Equipment, Series Id-WPU116 9th the "Index"). The escalation shall be calculated based upon the percentage increase of the monthly index between the date of quotation and the date of receipt of order and submittal approval/release to manufacture (ie: the index of the month of when the order is received and released to manufacture minus the index for the month of quotation divided by the index for the month of quotation, multiplied by the quoted price). Note there is approximately 2-4 month delay in the publishing and finalizing of these indexes by the U.S Federal Government. Therefore, the escalation will be calculated at the time the index for both months has been published and finalized.



9. **Limitation of Liability:** Notwithstanding anything else to the contrary, Seller shall have no liability for consequential, incidental, punitive, indirect and/or special damages regarding the sale or use of a product even if the potential for such damages has been disclosed to Seller. Seller's total liability for product defect claims shall not exceed the purchase price paid for the product.

10. **Complete Agreement:** These Terms and Conditions of Sale when combined with Seller's invoice represent the entire agreement between the parties with respect to the subject matter hereof. Language contained in any digital or written instrument from Buyer to Seller serving to modify the terms of any of the foregoing shall be of no effect.

11. **Severability:** If any provision of these Terms and Conditions of Sale shall be deemed illegal or unenforceable, such illegality or unenforceability shall not affect the validity and enforceability of any other provisions hereof, which together shall be construed as if such illegal and unenforceable provision or provisions had not been included herein.

12. **No Waiver:** The failure by Seller to enforce at any time any of the provisions of this agreement, or to exercise any election or option provided herein, shall not be a waiver and shall in no way be construed as a waiver of such provisions or options, nor in any way be construed to affect the validity of this agreement or any part thereof, or the right of Seller thereafter to enforce each and every such provision.

13. **No Indemnification:** Unless otherwise expressly provided in writing by both parties, Seller does not indemnify, nor does it hold Buyer harmless, against any liability, losses, damages and expenses (including attorney's fees) relating to any claim whatsoever, including without limitation, claims for personal injuries, death or property damage related to the products sold hereunder.

14. **Governing Law; Limitations:** The relationship between Buyer and Seller in relation to the products shall be governed by and construed in accordance with the laws of the State of New York, U.S.A. Any legal action with respect to any transaction must be commenced within one year after the cause of action has arisen.

15. **Dispute Resolution:** Actions by Seller for nonpayment by Buyer of the purchase price of products sold by Seller, or for redress of other breaches by Buyer of these Terms and Conditions of Sale, may be brought by Seller, at its option, before any court of competent jurisdiction in the State of New York. At Seller's option, disputes between Buyer and Seller, including all claims for non-performance by Seller, shall be finally settled by arbitration in Poughkeepsie, New York USA.

16. **Foreign Corrupt Practices Act:** Buyer represents and warrants to Seller that it shall comply with all laws in relation to its sale and/or use of the Products and will not pay anything of value to any government employee in connection with the sale of the Products.

17. **Precedence:** In the event of any inconsistency among the referenced documents, attachments, drawings, specifications or other provisions hereof, the following order of precedence shall apply: (1) special terms and conditions agreed to in writing by an Officer of the Seller, (2) these standard terms and conditions of sale, (3) specifications, (4) all other attachments or documents incorporated herein by reference.

Accepted by:

Company Name: _____
Signature: _____
Printed Name: _____
Title: _____
Date: _____

Attachment C- Influent Laboratory Report

CHAIN OF CUSTODY

HAWAII FOOD & WATER TESTING

2688 B Killhau Street

Honolulu, HI 96819

Phone: 836-5558

Fax: 836-5509 Email: lab@hfw.com

Name & Address: MORIGUCHI ENTERPRISE LLC
P.O. BOX 950
KEAHA, HI 96752

Temp Control: 1.7

Job: _____

P.O.#: _____

Sampled By: _____

Contact: ERIC MORIGUCHI
308 212-6486
 Phone: _____ email: oolporoe@gmail.com

Lab#	Sample	Date	Time	Type of Sample	On-Site DH	On-Site Chlorine	On-Site Temp	Analysts Required
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RELINQUISHED BY:
 Sign: x [Signature]
 Print: x Eric Moriguchi

Date: 6/19/23 Time: 6:10 AM

RECEIVED BY:
 Sign: x [Signature] Date: 06/19
 Print: v Terrence Bukoski Time: 0615

SPECIAL INSTRUCTIONS

Mandy M
MANDY MINOR 06-19-23 16:41



HAWAII FOOD & WATER TESTING LLC
 PO Box 277, Kamuela, HI 96743 | 808.836.5558 | lab@hfwat.com

LABORATORY ANALYSIS REPORT

Moriguchi Enterprises LLC
 P.O. Box 850
 Kekaha, HI 96752

Case No. 39
 Received 06-19-2023
 Analyzed 06-19-2023
 Completed 06-26-2023
 Sampled on 06-18-2023

Sample Type: Wastewater

Sampled by: ---

Lab No.	Sample ID	Sample Time	BOD-5 mg/L	TSS mg/L	TKN mg/L
121	Ching Young Village Influent	13:00	820	624	69.5

Method Reference:

Minimum Detection Level:
 Biochemical Oxygen Demand: EPA 405.1; MDL 1.0 mg/L
 Total Suspended Solids: EPA 160.2; MDL 1.0 mg/L
 Total Kjeldahl Nitrogen: EPA 351.2; MDL 0.10 mg/L

Approved by:

Mandy Minor, July 18, 2023

Disclaimer: We warrant the above analysis was performed in good faith, using methods which are considered Standard Methods, or using methods previously agreed upon by the client. No other warranty is expressed or implied by this laboratory report. All sample results pertain only to the sample(s) analyzed. This test report shall not be reproduced except in full, without written approval of the laboratory.

Attachment D- BWS Billing and Consumption Data

DATE	INFLUENT FLOW		INFLUENT				AERATION				RETURN			EFFLUENT		
	RUNTIME	GAL	DO	PH	800	TSS	DO	PH	SS	% SOLIDS	% SOLIDS	DO	PH	BOD	TSS	
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feb - 2022-

CHING YOUNG VILLAGE SHOPPING CENTER

DATE	INFLUENT FLOW		DO	INFLUENT			AERATION				RETURN	EFFLUENT			
	RUNTIME	GAL		PH	BOD	TSS	DO	PH	SS	% SOLIDS	% SOLIDS	DO	PH	BOD	TSS
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CHING YOUNG VILLAGE SHOPPING CENTER

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UICPermitNo. UO.AJP'-(daily) UNDERGROUND INJECTION CONTROL (UIC) INJECTIONWELLQUANTITYRECORD (gallons) WELL(s) No. --+-==

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15	;s10	15		15		15		15		15	
16	b1?,1	16		16		16		16		16	
17	5"3'ii	17		17		17		17		17	
18	5 , 1	18		18		18		18		18	
19	47"l>1	19		19		19		19		19	
20	l,Ot.S'	20		20		20		20		20	
21	iY11	21		21		21		21		21	
22	ln'l:li.\	22		22		22		22		22	
23	r..,t	23	\	23		23		23		23	
24	'l &l.l)	24		24		24		24		24	
25	l, 1Y	25		25		25		25		25	
26	4117	26		26		26		26		26	
27	LI tLq	27		27		27		27		27	
28		28		28		28		28		28	
29	7 f1	29		29		29		29		29	
30	t.o&:;-(-	30		30		30		30		30	
31	Lt, 19.	31				31				31	

UNDERGROUND INJECTION CONTROL (UIC)

UIC Permit No. **UK.113** (daily) INJECTION WELL QUANTITY RECORD (gallons)

WELL(s) No. 1-7

JAN. J(≤)	FEB.m1-	MAR.	APR.	MAY2Q.	JUN.
1	1	1	1	1	6124
2	2	2	2	2	7514
3	3	3	3	3	5410
4	4	4	4	4	6782
5	5	5	5	5	6062
6	6	6	6	6	7333
7	7	7	7	7	4529
8	8	8	8	8	6301
9	9	9	9	9	7455
10	10	10	10	10	7087
11	11	11	11	11	7068
12	11	12	12	12	6281
13	13	13	13	13	5612
14	14	14	14	14	5775
15	15	15	15	15	4362
16	16	16	16	16	6991
17	17	17	17	17	6975
18	18	18	18	18	7114
19	19	19	19	19	6454
20	20	20	20	20	6660
21	21	21	21	21	4690
22	22	22	22	22	6636
23	23	23	23	23	6960
24	24	24	24	24	7930
25	25	25	25	25	7659
26	26	26	26	26	7442
27	27	27	27	27	6163
28	28	28	28	28	4952
29	29	29	29	29	6544
30	30	30	30	30	6810
31	31	31	31	31	4707

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K
 UIC Permit No. **LJ d 3:J** (daily) INJECTION WELL QUANTITY RECORD (gallons)

Z J
 WELL(s) No. **-**

UNDERGROUND INJECTION CONTROL (UIC)

JUL.: 2odl/		AUG. 2oa1		SEPT. 2oa,		OCT. 2021		Nov.		DEC. 0;;J, f	
1	LJO(JJ. Hi	14-24	1111	39	1111	39	1111	5188	1	5914	
2	777	777	D2	777	1112	777	1112	4872	2	7387	
3	1113	1113	1113	1113	1113	1113	1113	6290	3	6456	
4	1114	1114	1114	1114	1114	1114	1114	6290	11.f-	1114	6343
5	115	115	115	115	115	115	115	6290	115	111s	6370
6	6	6	6	6	6	6	6	6	6	6	6787
7	1m'1	1m'1	1111	1111	1111	1111	1111	1111	m1	m1	3643
8	118	118	118	118	118	118	118	118	118	7118	4798
9	1119	1119	1119	1119	1119	1119	1119	1119	1119	--1119	6548
10	11110	11110	11110	11110	11110	11110	11110	11110	11110	11110	4662
11	11111	11111	11111	11111	11111	11111	11111	11111	11111	11111	6174
12	11112	11112	11112	11112	11112	11112	11112	11112	11112	11112	6031
U-1	11113	11113	11113	11113	11113	11113	11113	11113	11113	11113	8568
14	11114	11114	11114	11114	11114	11114	11114	11114	11114	11114	2533
15	15	15	15	15	15	15	15	15	15	m5	2565
16	16	16	16	16	16	16	16	16	16	16	4173
17	17	17	17	17	17	17	17	17	17	17	5023
18	18	18	18	18	18	18	18	18	18	18	7191
19	11119	11119	11119	11119	11119	11119	11119	11119	11119	11119	8557
20	20	20	20	20	20	20	20	20	20	20	9965
21	21	21	21	21	21	21	21	21	21	21	6514
22	22	22	22	22	22	22	22	22	22	22	7035
23	23	23	23	23	23	23	23	23	23	23	8553
24	M	M	M	M	M	M	M	M	M	M	1007
25	25	25	25	25	25	25	25	25	25	4 S b	25
26	26	26	26	26	26	26	26	26	26	7"10.0	2
27	11127	11127	11127	11127	11127	11127	11127	11127	11127	11127	9237
28	11128	11128	11128	11128	11128	11128	11128	11128	11128	11128	9178
29	11129	11129	11129	11129	11129	11129	11129	11129	11129	11129	7237
30	11130	11130	11130	11130	11130	11130	11130	11130	11130	11130	9148
31	11131	11131	11131	11131	11131	11131	11131	11131	11131	11131	9035

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CHAPTER 11-62
WASTEWATER SLUDGE PUMPING AND DISPOSJ. EPORT
Dated 5/18/2005

] Quarter ending - - - -
16 months ending lfet., 2.0

11

DATE OF PICKUP/ PUMPING	VOLUME WASTED/ PUMPED/ DISPOSED- PICKED UP AMOUNT [gallons]	VOLUME WASTED/ PUMPED/DIPOSED- PICKUP AMOUNT (cubicyds)	% SOLIDS or MLSS	TOTAL WEIGHT (dry metric tons)*	NAME OF REGISTERED PUMPING/HAULING FIRM	ULTIMATE DISPOSAL LOCATION	DRIVER INITIALS
7-{- 2..	"2ood	()00			LQ	Lt TP	D(1
"rJ/IM1	i)%. :.)000	..5000			KLD	LthLrr. TP	Obt
7/)-2-	)Goo	Jloo			J' J	T'f	p
7/ti/JO-	Q{JCO	?r;c>.lit..			h D	Uh/-l'" 7'f	J)
)/tC))-	')._6rY)	" (:0 6'			-t- ()	L, #1 .j ;t.	
7/1/1q	?-(,CC	-:fj00			K : n	L'i,J'/' < --r,--	ty_;
1/filv	)c£0	tf;:rQ9			Y. / 0	1' 1' / 1' 7 1):	r J (-
0: 2/ ;? Z.	t) , :), :e	| 7, 1' ;			Y. / 0	1' 1' / 1' 7 1):	r J (-
i tS/?'2	;) 00	3q oI)			fl- D	L;hve 1P	/)9'

Example 1: Disposing of 3000 gallons at 1% solids. 3000 gal x 8.34 lbs/gal x 1 ton/2000 lbs x 0.907 mt/ton = 0.113 metric tons
Example 2: Disposing of 3000 gallons with a MLSS of 15000 ITTJL. 3000 gal x 1000000 x 15000 mg/L x 8.34 lbs/2000 lbs/ton x 0.907 mt/ton = 0.17 mt
Example 3: Disposing of 1 cubic yard at 15% solids. 1 cy • 201.974 gal/cy • 0.15 • 8.34 lb/gal x 1 ton/2000 lbs • 0.907 mt/ton = 0.1146 mt

"I certify under penalty or law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

S; , "" M dUeJ,k

Print Name and Title: /&.'/ocs. l;: uq J- /1 1h:t h".\ U

Date: - - - - -

CHAPTER 11-62
 WASTEWATER SLUDGE PUMPING AND DISPOSAL Rb ..JRT
 Dated 5/18/2005

] Qv lts.r*" "" ing --
 16-ily

WASTEWATER TREATMENT WORKS NAME: - - - - -

Perritt, 1 : - - - - -
 - - - - - : F 1
 - - - - -
 - - - - -

DATE OF PICKUP/ PICKUP AMOUNT (gallons)	VOLUME WASTED/ PUMPED/DISPOSED- PICKUP AMOUNT (cubic yds)	VOLUME WASTED/ PUMPED/DISPOSED- PICKUP AMOUNT (cubic yds)	% SOLIDS MLSS	TOTAL WEIGHT (metric tons)	NAME OF REGISTERED PUMPING/HAULING FIRM
6/1/05	1000	1000	1	1000	Kt n
6/17/05	3500	3500	1	3500	IA D
6/21/05	5500	5500	1	5500	K D
6/21/05	3000	3000	1	3000	t 1 0

*Example 1: Disposing of 3000 gallons at 1% solids. 3000 gal x .01 x 8.34 lbs/gal x 1 ton/2000 lbs = 0.907 mt/ton = 0.113 metric tons
 Example 2: Disposing of 3000 gallons with a MLSS of 1500 mg/L. 3000 gal / 1000000 x 15000 mg/L x 8.34 lbs/2000 lbs = 0.17 mt
 Example 3: Disposing of 1 cubic yard at 15% solids. 1 cy • 201.974 gal/cy • 0.15 • 8.34 lb/gal x 1 ton/2000 lbs = 0.907 mt/ton = 0.1146 mt

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Signature: &'-W

Print Name and Title: Kt n IA D K D t 1 0

Date: - - - - -

**CHAPTER 11-62
WASTEWATER SLUDGE PUMPING AND DISPOS. REPORT
Dated 5/18/2005**

Quarter ending _____
6 months ending _____

WASTEWATER TREATMENT WORKS NAME: _____

Permit Number: 1+ i L'5 \... (... \":> 4(.-

DATE OF PICKUP/PUMPING	VOLUME WASTED/PUMPED/DISPOSED - PICKED UP AMOUNT (gallons)	VOLUME WASTED/PUMPED/DISPOSED - PICKUP AMOUNT (cubic yds)	% SOLIDS or MLSS	TOTAL WEIGHT (dry metric tons)*	NAME OF REGISTERED PUMPING/HAULING FIRM	ULTIMATE DISPOSAL LOCATION	DRIVER INITIALS
1/1/12	2000		11%		I, J- I)	"-A,, ('	D
1/1/12	2000		11%		I, J- I)	"-A,, ('	D
1/1/12	2000		3500		K D	L; ue... Tt P	) (: :n
1/1/12	2000		11%	110	(. | D	L: Jve TP	06;
1/1/12	2000		500		1? i i D	L: nvc Tf	TY-
1/1/12	2000		1500		Vi. D	L; hvc. -CP	DG
1/1/12	2000				ALD	L Jit Je 1 P	K. I
1/1/12	2000		100%		t }	L; J, ve TJJ	D t;
1/1/12	2000		4%		1-tlf)	L) 1rc.: Tf	) ) 6
1/1/12	2000		2%		t φ-V	[., k Tf	Orr;/
1/1/12	2000		1%		t 0	Lr ii-v-L TP	D.(i

* Example 1: Disposing of 3000 gallons at 1% solids. 3000 gal x .01 x 8.34 lbs/gal x 1 ton/2000 lbs x 0.907 mt/ton = 0.113 metric tons
 Example 2: Disposing of 3000 gallons with a MLSS of 15000 mg/l. 3000 gal / 1000000 x 15000 mg/L x 8.34 lbs/2000 lbs/ton x 0.907 mt/ton = 0.17 mt
 Example 3: Disposing of 1 cubic yard at 15% solids 1 cy • 201.97 gal/cy • 0.15 • 8.34 lbs/gal x 1 ton/2000 lbs • 0.907 mt/ton = 0.1146 mt

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly violating."*

Signature: _____ μ

Print Name and Title: Jr., III & I'es r . li 1, L' id &

Date: _____

CHAPTER 11-62
 WASTEWATER SLUDGE PUMPING AND DISPOSAL REPORT

Quarter ending - _____
 months ending U-1-1-11 / _____
 Permit Number: 44141 / 7

Dated 5/18/2005

WASTEWATER TREATMENT WORKS NAME: Jh

DATE OF PICKUP/ PUMPING	VOLUME WASTED/ PUMPED/DISPOSED- PICKED UP AMOUNT (gallons)	VOLUME WASTED/ PUMPED/DISPOSED- PICKUP AMOUNT (cubic yds)	% SOLIDS or MLSS	TOTAL WEIGHT (dry metric tons)	NAME OF REGISTERED PUMPING/HAULING FIRM	ULTIMATE DISPOSAL LOCATION	DRIVER INITIALS
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>
<u>5/11/05</u>	<u>3000</u>	<u>1</u>	<u>1%</u>		<u>Li A</u>	<u>Lh Lt 4, T/J</u>	<u>J1A</u>

Example 1: Disposing of 3000 gallons at 1% solids. 3000 gal × 8.34 lbs/gal × 1 ton/2000 lbs × 0.907 mt/ton = 0.113 metric tons
 Example 2: Disposing of 3000 gallons w ha MLSS of 15000 mg/L. 3000 gal/1000000 × 15000 mg/L × 8.34 lbs/2000 lbs/ton × 0.907 mt/ton = 0.17 mt
 Example 3: Disposing of 1 cubic yard at 15% solids. 1 cy × 201.974 ga/cy × 15'834 lb/gal × 1ton/2000lbs × 0.907 mt/ton = 0.1146 mt

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S. J. P
 Print Name and Title: S. J. P, 1-0-175 / 4 Date: _____

Attachment E- Tenant Flow Data

Proj No. 22027_220 38	CYV Tenant	Type (Restaurant / Retail / Service)	Max No. of Employees Any Given Time	gpd / unit	HRT (1 shift = 8hrs)	Seat Count (Restaurante only)	gpc / seat	Customers (if Take Out Only)	gpd / meal wo toilet	Public Restroom	gpc / feature	Tenant Dedicated Restroom	Total	
Bldg A	Big Save Markets - Times Supermarket	Retail	8	20	2							1	320	
	Pedego Hanalei - Electric Bikes	Retail	1	20	1								20	
	Tiki Tzatziki	Restaurant	2	20	1			100	5				40	
Bldg B	Aloha from Hanalei	Retail	2	20	1								40	
	DeCamp Construction	Service	2	20	1							1	40	
	Hanalei River Healing & Bodywork	Service	1	20	1								20	
	Hula Moon of Hanalei	Retail	3	20	1								60	
	Pualani Hanalei	Retail	2	20	1								40	
	Reside Kauai	Service	2	20	1								40	
	Restrooms - Upstairs and Downstairs	N/A			2					2		2		0
	Sea of Qi Spa & Apothecary	Service	3	20	0.5									30
	Styles Studio Hanalei	Service	4	20	1									80
	Village Snack & Bakery Shop	Restaurant	5	20	1	28	50	250	5					1500
Bldg C	Hanalei Surf Backdoor	Retail	4	20	1								80	
	Hanalei Surf Office	Service	4	20	1								80	
	Honua Engineering	Service	4	20	1								80	
	Kauai Rainbow Connection	Service	2	20	0.5								20	
	Management Office	N/A	5	20	1								100	
	Ono Kauai Food Tours	Service	1	20	0.5			10	5				10	
	Spinning Dolphin Design	Service	2	20	1								40	
	Sunrise Emporium	Retail	2	20	1								40	
Bldg D	Alo Laa Danse Yoga Studio	Service	2	20	1								40	
	Hanalei Pizza Shop	Restaurant	2	20	1			110	5				40	
	Hanalei Strings & Things	Retail	3	20	1								60	
	Hot Rocket	Retail	1	20	1								20	
	Northside Grill	Restaurant	8	20	0.5	35	50					2	1830	
	Pedal N Paddle	Retail	3	20	1								60	
	Seahorse Boutique	Retail	2	20	1								40	
	Timeshare Resales Hawaii	Service	2	20	0.5								20	
Bldg E	Tresor Rare	Service	5	20	1								100	
	Billabong Hanalei	Retail	4	20	1								80	
	Chicken in a Barrel BBQ	Restaurant	5	20	1	55	50	350	5				2850	
	Hanalei Poke	Restaurant	5	20	1			175	5				100	
	Kokonut Kids	Retail	1	20	1								20	
	Jo-Jo's Shave Ice	Restaurant	5	20	1			400	5				100	
	L & L Hawaiian BBQ	Restaurant	4	20	1			300	5				80	
	Ohana Shop	Retail	1	20	1								20	
Bldg F	On the Road to Hanalei - Sway	Retail	3	20	1								60	
	Chocolat Hanalei	Restaurant	1	20	1			50					20	
	Infinite Art Gallery	Retail	1	20	0.5								10	
Bldg G	Na Pali Properties	Service	3	20	1							1	60	
	Kalypso Island Bar and Grill	Restaurant	12	20	1.5	60	50					2	3360	
Bldg H	Aloha Juice Bar	Restaurant	3	20	1			350					60	
Bldg I	Na Pali Catamaran	Service	4	20	0.5								40	
Total												11750		