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MANA

Maui All Natural Alternative
5780 Fleet Street, Suite 310
Carlsbad, California, 92008

March 12, 2018

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

Stewart Stant, Director
County of Maui
Dept. of Environmental Management
2050 Main Street, Suite 28
Wailuku, HI 96793

Dear Director Glenn and Director Stant:

With this letter, MANA hereby transmits the documents package for the Final Environmental Impact Statement (EIS) for the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility situated at (2) 3-8-001:188 (portion) in the Wailuku District on the island of Maui for publication in the next available edition of the Environmental Notice. The Final EIS includes copies of all written comments received during the 45-day public comment period for the Draft EIS, along with responses to each comment. We are simultaneously filing the requested number of copies of the Final EIS to the County of Maui Dept. of Environmental Management, the accepting authority for this EIS.

Also enclosed is a distribution list for finalization by OEQC under HAR § 11-200-20. Upon receiving verification from OEQC, we will make the Final EIS available to those so indicated on the distribution list.

The document package accompanying this letter contains: a completed OEQC Publication Form; one hard copy of the Final EIS and three electronic copies in PDF format; and the distribution list for finalization by your office.

If there are any questions, please contact Jeff Walsh at (808) 729-1495.

Sincerely,

Jeff Walsh
MANA

Enclosures

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18-441

APPLICANT
PUBLICATION FORM

Project Name:	Renewable energy conversion and sludge processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF)
Project Short Name:	WKWWRF Renewable Energy Project
HRS §343-5 Trigger(s):	• Use of State or County Lands or the use of State and County funds • Use of land classified as Conservation District • Wastewater Treatment Unit Members of the public also identified triggers for: a) Use within a shoreline area as defined in section 205A-41 b) Power-generating facility.
Island(s):	Maui
Judicial District(s):	Wailuku District
TMK(s):	(2) 3-8-001:188 (portion)
Permit(s)/Approval(s):	Environmental Impact Statement(EIS), Special Management Area application and approval, Conservation District Use Permit, Department of Health Clean Air Branch, Non-Covered Source Air Permit, County of Maui Construction and Building Permits (Electrical, Fire, Plumbing, Grading) Community Noise Permit, as applicable; Special Flood Hazard Area Development Permit, as applicable, Federal Aviation Administration Notice of Proposed Construction, Stormwater Pollution Prevention Plan. Wastewater biosolids to Class A fertilizer use permit in accordance with Hawaii Administrative Rules (HAR), Chapter 11-62, Subchapter 4, Wastewater Sludge Use and Disposal. Compliance to all applicable provisions of the HAR, Chapter 11-62, Wastewater Systems, including provisions for Waste Water Treatment. Land application of digestate produced by the anaerobic digestion process will be regulated and approved by the Department of Health. Compliance with the State of Hawaii, Historical Preservation District, HAR 13-275-3 including application for Archeological Inventory Study and approval of the Study. National Pollutant Discharge Elimination System Permit (as applicable)
Approving Agency:	County of Maui, Department of Environmental Management
Contact Name, Email, Telephone, Address	Director Stewart Stant, stewart.stant@co.maui.hi.us, 808-270-7431, 2050 Main Street, Suite 2B, Wailuku, HI 96793
Applicant:	Maui All Natural Alternative, LLC (MANA)
Contact Name, Email, Telephone, Address	Jeff Walsh, jeff.walsh@anaergia.com (808) 729-1495; (760) 436-8870 X-108 5780 Fleet Street, Suite 310, Carlsbad, CA 92008
Consultant:	None
Contact Name, Email, Telephone, Address	

Status (select one)	**Submittal Requirements**
____ DEA-AFNSI	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of

	the DEA, and 4) a searchable PDF of the DEA; a 30-day comment period follows from the date of publication in the Notice.
____ FEA-FONSI	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; no comment period follows from publication in the Notice.
____ FEA-EISPN	Submit 1) the approving agency notice of determination/transmittal letter on agency letterhead, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEA, and 4) a searchable PDF of the FEA; a 30-day comment period follows from the date of publication in the Notice.
____ Act 172-12 EISPN ("Direct to EIS")	Submit 1) the approving agency notice of determination letter on agency letterhead and 2) this completed OEQC publication form as a Word file; no EA is required and a 30-day comment period follows from the date of publication in the Notice.
____ DEIS	Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the DEIS, 4) a searchable PDF of the DEIS, and 5) a searchable PDF of the distribution list; a 45-day comment period follows from the date of publication in the Notice.
__X__ FEIS	Submit 1) a transmittal letter to the OEQC and to the approving agency, 2) this completed OEQC publication form as a Word file, 3) a hard copy of the FEIS, 4) a searchable PDF of the FEIS, and 5) a searchable PDF of the distribution list; no comment period follows from publication in the Notice.
___ FEIS Acceptance Determination	The approving agency simultaneously transmits to both the OEQC and the applicant a letter of its determination of acceptance or nonacceptance (pursuant to Section 11-200-23, HAR) of the FEIS; no comment period ensues upon publication in the Notice.
____ FEIS Statutory Acceptance	The approving agency simultaneously transmits to both the OEQC and the applicant a notice that it did not make a timely determination on the acceptance or nonacceptance of the applicant's FEIS under Section 343-5(c), HRS, and therefore the applicant's FEIS is deemed accepted as a matter of law.
____ Supplemental EIS Determination	The approving agency simultaneously transmits its notice to both the applicant and the OEQC that it has reviewed (pursuant to Section 11-200-27, HAR) the previously accepted FEIS and determines that a supplemental EIS is or is not required; no EA is required and no comment period ensues upon publication in the Notice.
____ Withdrawal	Identify the specific document(s) to withdraw and explain in the project summary section.
____ Other	Contact the OEQC if your action is not one of the above items.

Project Summary

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

The County selected Maui All Natural Alternative, LLC ("MANA") at the conclusion of an RFP process for a renewable energy and sludge drying solution. MANA proposed to install an anaerobic digester and associated appurtenances onsite, which will anaerobically digest energy crops anticipated to be grown on former Hawaiian Commercial & Sugar (HC&S) plantation lands and sourced locally from Central Maui Feedstocks, LLC. The product of the anaerobic digestion process is renewable methane in the form of biogas that is treated on site and used to fuel a combined heat and power (CHP) engine for electrical power generation. Recovered heat from the CHP with additional biogas will provide the heat for the drying of all the municipally generated wastewater biosolids produced on Maui. The Project is not designed to export electrical energy to the grid. The entire facility will be located on the west side of the existing aerobic blower building and well within the confines of the WKWWRF. All energy crops are expected to be grown on existing agricultural land.

The Project goals are to provide locally sourced renewable energy to assist the County of Maui in achieving its renewable goals and to provide a long term sustainable solution for biosolids management.

~~Draft~~ Final Environmental Impact Statement

Renewable Energy Conversion and Sludge Processing for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF)

281 Amala Place
Kahului, Maui, Hawaii

~~Prepared for~~ Accepting Authority:

County of Maui
Department of Environmental Management

~~Prepared by~~ Applicant:

MANA
Maui All Natural Alternative

~~December 2017~~ March 2018

This ~~Draft~~ Final EIS and all ancillary documents were prepared under my direction or supervision and the information submitted, to the best of my knowledge, fully addresses the document content requirements as set forth in Hawaii Administrative Rules, Sections 11-200-17 and 11-200-18, as appropriate.

Arun Sharma, MANA — 3/7/18 Date

Project Summary

Project Name:	Renewable Energy Conversion and Sludge Processing for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF)
Type of Document:	~~Draft~~ Final Environmental Impact Statement
Legal Authority:	Hawaii Revised Statutes, Chapter 343 and Hawaii Administrative Rules, Chapter 200, Title 11
Agency Determination:	~~Draft~~ Final Environmental Impact Statement
Applicable Environmental Assessment Review Triggers:	Use of State or County lands or use of State or County Funds Use of any land classified as conservation district by the state land use commission under Chapter 205, HRS Use within a shoreline area as defined in Section 205A-41, HRS Propose any: A. Wastewater treatment unit, except an individual wastewater system or a wastewater treatment unit serving fewer than fifty single family dwellings or the equivalent B. Waste-to-energy facility
Applicant:	Maui All-Natural Alternative (MANA) 5780 ~~5870~~ Fleet Street, Suite 310 ~~301~~ Carlsbad, California, 92008 Contact: Jeff Walsh Phone: (808) 729-1495
Accepting Authority:	Department of Environmental Management County of Maui 2050 Main Street, Suite 2B Wailuku, Maui, Hawaii 96793 Contact: Stewart Stant, Director Phone: (808) 270-8230

Project Location:	County of Maui, Wailuku-Kahului Wastewater Reclamation Facility 281 Amala Place Kahului, Maui, Hawaii 96732 TMK: (2) 3-8-001:188 (portion)
Project Purpose and Need:	The County of Maui desires to supplant existing fossil fuel generated electricity at its WKWWRF with locally sourced, renewable energy for the community. In addition, the County of Maui seeks an outcome that reduces wastewater sludge (biosolids) management costs by drying the sludge. The County of Maui issued a Request for Proposals (RFP) to address these needs and engaged the applicant as a result of the RFP.
Project Summary:	The preferred alternative involves the installation of an anaerobic digester and associated appurtenances at the WKWWRF in Kahului, which will anaerobically digest energy crops, which may be grown on former Hawaiian Commercial & Sugar (HC&S) plantation lands and sourced locally from Central Maui Feedstocks, LLC. The product of the anaerobic digestion process is methane in the form of biogas, entirely captured within the anaerobic digester, that is then treated on-site and used to fuel a combined heat and power (CHP) engine for electrical power generation. The electricity produced will be used to operate the WKWWRF. Waste heat from the CHP engine, combined with additional biogas, will provide the required heat for the drying of the municipally generated wastewater biosolids produced on Maui. A small amount of propane may be used for drying process stabilization. Remaining organic matter from the anaerobic digestion process (digestate) will be utilized as a soil amendment on the agricultural lands used for energy crop cultivation. This will benefit the crop by adding organic matter back to the soil and nutrients in the digestate will reduce or eliminate the need for conventional fertilizer inputs.
Description of the Affected Environment:	Since the project site is located entirely within the WKWWRF property and more specifically, between existing structures in the WKWWRF, adverse impacts to the local environment are not anticipated to be appreciable. Where there are anticipated impacts to the existing soils, flora and fauna, visual, air quality, and noise environments, engineering Best Management

Practices will be employed to minimize impacts that may result.

In addition, impacts to the socio-economic conditions, infrastructure, utility systems, and public services are also not anticipated to be significant. Project implementation will result in positive impacts related to enhanced ~~wastewater treatment~~ drying of wastewater sludge, production of renewable energy, the injection of private development into the local economy, and moderate job growth.

The project ~~will~~ may also result in former sugarcane lands being returned to agricultural production to meet the demand for digester feedstock.

Table of Contents

Appendices

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List of Acronyms Used

AIS	Archaeological Inventory Survey
ALISH	Agricultural Lands of Importance to the State of Hawaii
BMPs	Best management practices
BS	Beaches (sand)
CDUP	Conservation District Use Permit
CFR	Code of Federal Regulations
CFS	Cubic feet per second
CHP	Combined heat and power
CH_4	Methane
CMPs	Conservation management practices
CO	Carbon monoxide
CO_2	Carbon dioxide
DB(A)	Decibel (A-weighted)
DEM	County of Maui, Department of Environmental Management
DLNR	State of Hawaii, Department of Land and Natural Resources
DOH	State of Hawaii, Department of Health
DOT	State of Hawaii, Department of Transportation
DWS	County of Maui, Department of Water Supply
EA	Environmental Assessment
EIS	Environmental Impact Statement
EISPN	Environmental Impact Statement Preparation Notice
ESA	Endangered Species Act
FAA	Federal Aviation Administration
Fd	Fill lands
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
HAR	Hawaii Administrative Rules
HC&S	Hawaiian Commercial & Sugar Company
HECO	Hawaiian Electric Company, Inc.
HRS	Hawaii Revised Statutes
H_2S	Hydrogen sulfide

ICAP	Island Climate Adaptation and Policy
JcC	Jaucus sand, saline
KPWS	Kanaha Pond Wildlife Sanctuary
LSB	Land Study Bureau
MANA	Maui All Natural Alternative
MCC	Maui County Code
MECO	Maui Electric Company, Ltd.
MGD	Million gallons per day
MIP	Maui Island Plan
MOA	Memorandum of Agreement
MSL	Mean sea level
MSW	Municipal solid waste
MW	Megawatt
NO_2	Nitrogen dioxide
OEQC	Office of Environmental Quality Control
PIRCA	Pacific Islands Regional Climate Assessment
PM2.5	Particulate matter that is 2.5 microns or less in diameter
PPA	Power purchase agreement
PVC	Poly vinyl chloride
RFP	Request for proposals
SCS	Soil Conservation Service
SHPD	State Historic Preservation Division
SMA	Special Management Area
SOP	Standard operating procedure
SO_2	Sulfur dioxide
SPE	Special Purpose Entity
UH	University of Hawaii
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
WKWWRF	Wailuku-Kahului Wastewater Reclamation Facility
WRF	Wastewater Reclamation Facility
WWII	World War II

Chapter 1: Project Overview

1.1 Project Location

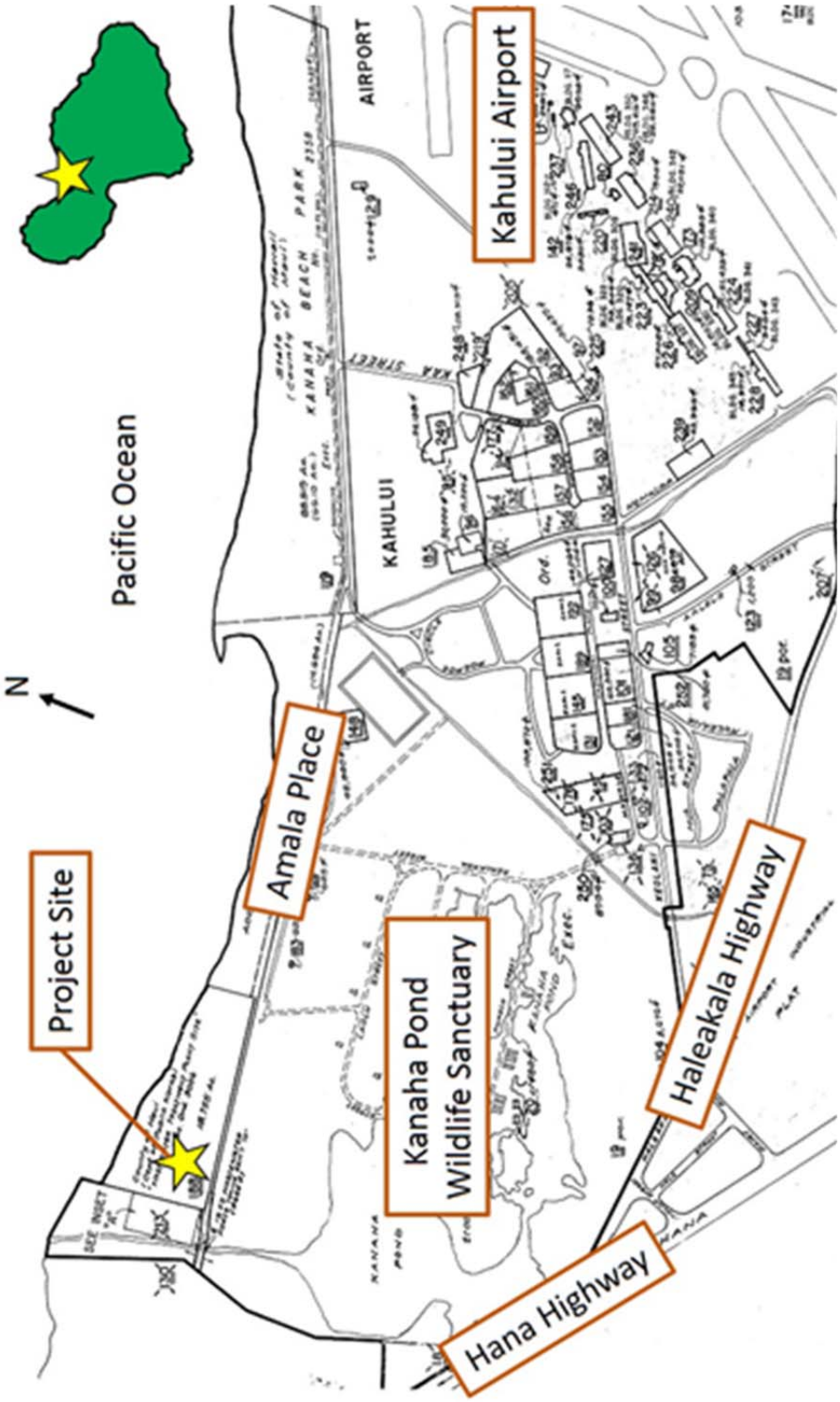
The proposed Maui All-Natural Alternative (MANA) project will be located on a site wholly within the County of Maui (County), Department of Environmental Management (DEM) operated Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF). The WKWWRF is located on the northern coastline of the island of Maui at 281 Amala Place in Kahului, Tax Map Key Number (2) 3-8-001:188. The WKWWRF property is a shore-fronting parcel and encompasses an area of 18.755 acres. See **Figure 1**. There exists a variety of industrial and commercial uses in the general vicinity, including Kahului Harbor, Kahului Airport, the Maui Electric Kahului Power Plant, and Maui Oil.

The WKWWRF was built and commissioned in 1973 and provides secondary treatment for municipal sewage for the Wailuku and Kahului areas. The service area includes Central Maui and the facility presently has a capacity of treating 7.9 million gallons per day of wastewater based on average dry weather flow conditions. Recent projections have the facility reaching its maximum capacity of secondary treatment by 2030.

Since its commissioning in 1973, upgrades at the WKWWRF have been implemented to maintain treatment capacity, as well as to install structural improvements to protect the facility from tsunami, flooding, and shoreline erosion hazards. Structural improvements to fortify the facility were recently completed, including a shoreline protection rock revetment project.

The WKWWRF property is owned by the State of Hawaii and the County's usage is pursuant to State Executive Order Number 3006, (See Appendix B) which set aside the property for wastewater treatment purposes. The MANA project site (less than one acre within the WKWWRF property) is subject to a lease from the County.

Digester feedstock crops will be purchased from offsite, and are expected to be grown on privately-owned agricultural land in central Maui under a feedstock supply and service agreement with Central Maui Feedstocks, LLC.



Source: County of Maui, Real Property Tax

Figure 1 Project Location Map

1.2 Project Need/Basis

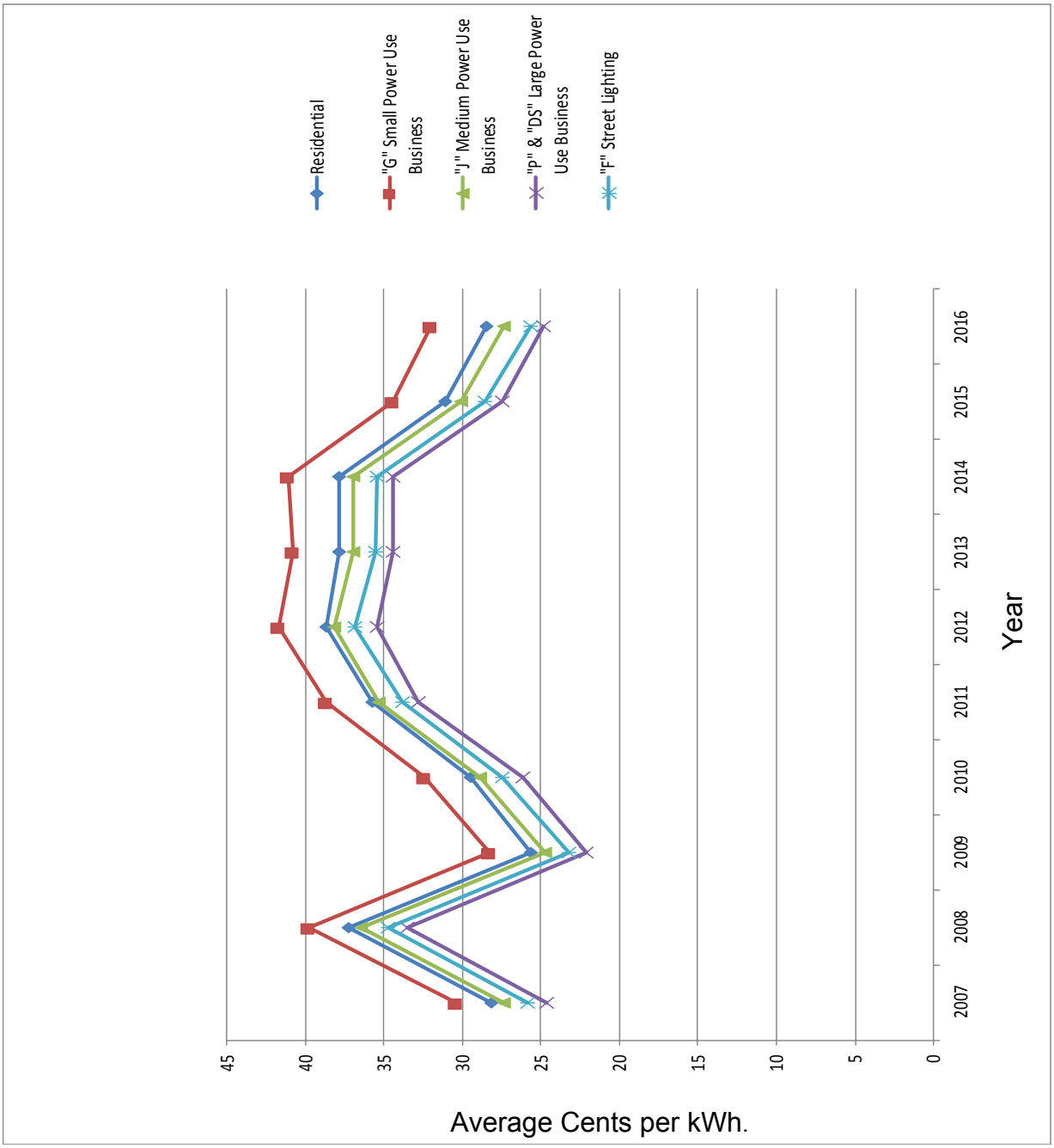
The DEM identified various needs for this project though deliberations and discussions with DEM's Wastewater Reclamation Division and the County Administration. Following internal consultation and vetting, it was determined that the best means of achieving the goals, described below, was through a request for proposals procurement.

The identified deliverables for the request for proposals included:

Renewable Energy Supply. The DEM identified a need for a long-term clean energy strategy that would address renewable energy sustainability. The conversion of existing utility supplied, fossil fueled facilities to ones that are supplied with firm, renewable energy is consistent with this clean energy goal. The energy solution(s) and sources would have to be competitive with non-renewable energy, yet practical and affordable within the context that no financial burden or liability would be realized by the County. The pathway undertaken would also comply with State of Hawaii 2016 Renewable Energy Standards and will provide solutions that would be locally sourced and procured. Locally sourced energy would provide supply security and insulation from foreign and off-shore procured fuel and energy.

Energy Price Certainty and Affordability. One of the DEM's largest variable costs of operation is the purchase of electricity from Maui Electric Company, Ltd., the local electric utility on Maui. The DEM expressed a desire for budget price certainty and predictability as the variability of annual electrical purchase from the utility has fluctuated between 22 cents to 35 cents per kilowatt-hour (kWh) over the last decade. See **Figure 2**. The DEM concluded that a more predicable pricing mechanism would be one that would fix the cost over a period within a Power Purchase Agreement (PPA), which would convert a variable cost budget line item to one that is more fixed and predicable. The DEM recognized that, although the need for price certainty was important, a fixed price for electricity would have to be competitive with existing and alternative solutions.

Incorporating Additional Opportunities with Renewable Energy. The DEM deliberated on additional opportunities that would further augment its renewable energy and environmental sustainably strategies, while achieving cost savings. One such opportunity was the processing and disposition of the wastewater sludge that resulted from the secondary treatment process, for which processing costs had risen by more than 20 percent in recent years. ~~Waste heat generated from the renewable energy generation process~~ The WKWWRF site was determined by DEM to be the most advantageous in terms of location and space availability relevant to consolidating sludge processing at one Wastewater Reclamation Facility (WRF). Additionally, the WKWWRF is the only WRF on the island of Maui yet to include some form of renewable energy generation. DEM determined that the exhaust waste heat from a combined heat and power system producing firm electrical power could be beneficially used to assist in drying the wastewater sludge, and therefore mandated this deliverable in its RFP.



Source: Maui Electric Company, Ltd.

Figure 2 MECO Cost of Final Delivered Energy

Methodology and Location Determination. The DEM reviewed these identified needs with a pathway to project execution that would include viable budgetary solutions. The DEM recognized that in the current County of Maui budgetary environment, a public/private partnership would suit the DEM's desire to reduce operating costs, while not having to fund a significant capital project. To this end, the DEM sought a developer who would own, design, construct, operate, and maintain a system that provided firm, renewable energy, less grid dependence, and sludge drying services on property the DEM controlled.

1.3 Project Procurement

The DEM issued a Request for Proposals (RFP #15-16/P98) through a public procurement solicitation in accordance with Chapter 103D, Hawaii Revised Statutes (HRS) on March 21, 2016 to address the identified project needs. The RFP requested the ownership, permitting, design, construction, operation, and maintenance of a renewable energy and wastewater sludge drying solution for the WKWWRF. In the RFP, the DEM stipulated that the proposer was to provide the electrical and sludge servicing needs within the structure of a PPA.

Anaergia Services LLC was awarded the project on May 19, 2016. A local Special Purpose Entity (SPE), Maui All-Natural Alternative (MANA), was formed by Anaergia to execute the project. After the award of the RFP, MANA worked with the DEM to develop a site lease for consideration by the Maui County Council. On December 16, 2016, the Maui County Council approved Resolution 16-171 for a 20-year site lease to MANA for a one-acre portion of land within the WKWWRF. A Memorandum of Agreement (MOA) is in place to facilitate work for the required environmental ~~permitting~~ review of the project ~~prior to the lease being approved~~. See **Appendix I**.

MANA and the DEM signed a service agreement on February 14, 2017, which included the supply of firm, renewable energy for the WKWWRF and sludge drying service for all DEM generated wastewater sludge. MANA is wholly responsible for the execution of the project deliverables.

1.4 Project Description

MANA proposes to install an anaerobic digester and associated appurtenances within the WKWWRF. The primary product of the digestion process is a renewable natural gas (RNG) (biogas), largely comprised of methane, that will be refined on-site and used to fuel a combined heat and power (CHP) engine for electrical power generation, which will be the primary source of electricity for the WKWWRF. The proposed project will provide the best available technology for the anaerobic digestion of energy purpose crops (agricultural crops specifically grown for their high energy potential and digestion properties). The energy purpose crops ~~will~~ are expected to be grown on former Hawaiian Commercial & Sugar Company (HC&S) plantation lands and sourced locally

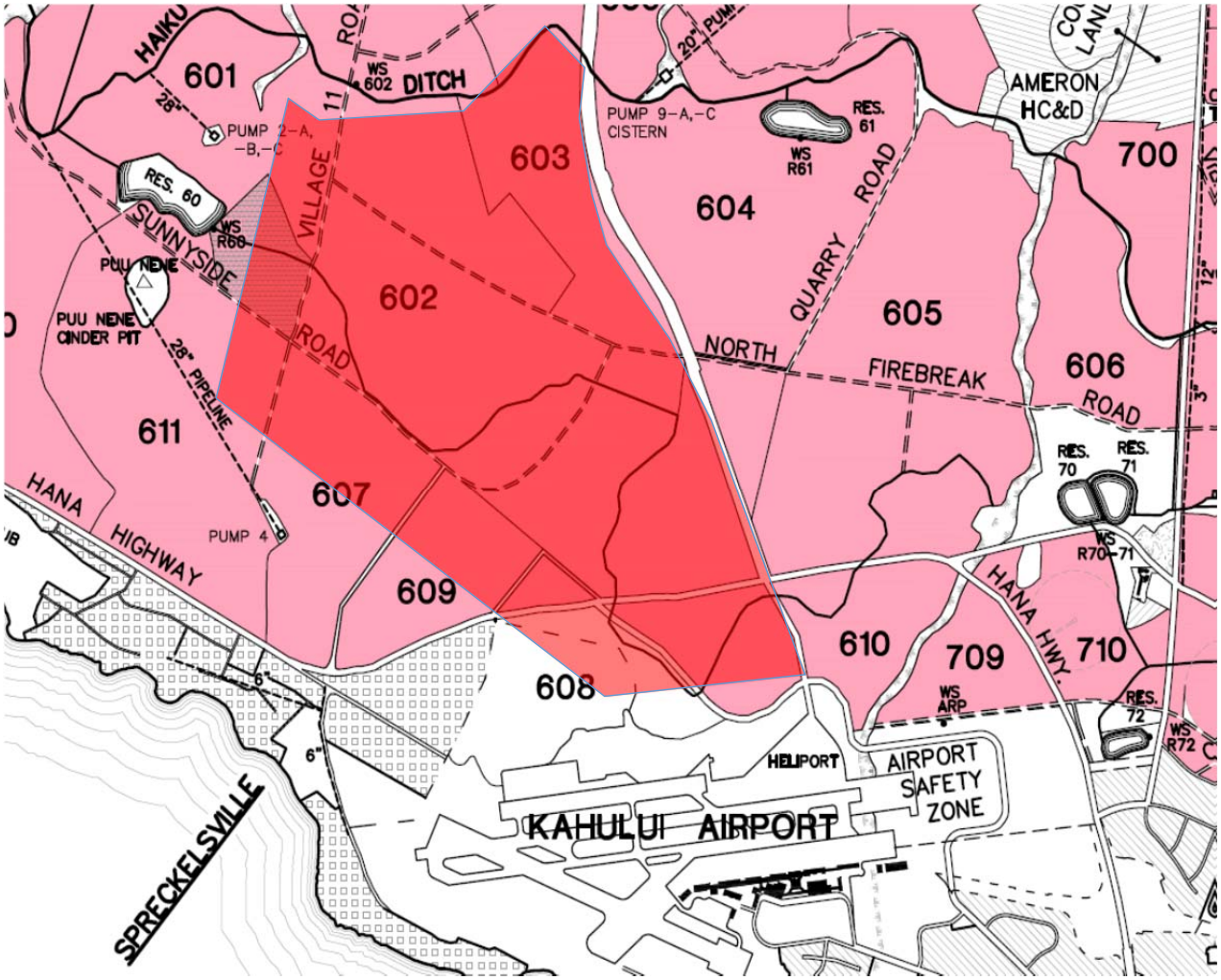
from Central Maui Feedstocks LLC, a subsidiary of Alexander & Baldwin, Inc. See **Figure 3**.

Biogas was chosen for its safety, cost, and availability as a renewable Maui-produced fuel that would displace foreign imported fuel. Biogas production from anaerobic digestion is a well-established and widely used, safe, firm, and renewable fuel that is used and permitted throughout the US at 2,200 locations and at over 10,000 sites in Europe.[1] The City and County of Honolulu has in operation anaerobic digesters at its Sand Island and Honouliuli Wastewater Facilities. As allowed within the sludge drying section of the Service Contract with the County, a propane storage tank will be installed. The purpose is to provide a stabilizing fuel for drying sludge. Propane will also be used to stabilize the process in event of biogas fluctuations, digester upsets and used during commissioning and plant start up. Propane will not be used as fuel for power generation.

Wastewater sludge generated at the three County wastewater treatment facilities, namely the Kihei WRF ~~Wastewater Reclamation Facility~~, the Lahaina WRF~~Wastewater Reclamation Facility~~, and the WKWWRF, will be transported to the project for drying. Existing wastewater sludge is approximately 13-15 percent cake solid (85-87 percent water). For many years, the DEM has paid a contractor to handle the sludge by co-composting it with green waste at the County's Central Maui Landfill; however, dramatically increased costs and environmental/safety concerns related to this operation factored in to the DEM's desire to seek a more sustainable long-term solution. ~~Since the current cost to handle the sludge is determined by weight, a reduction in moisture in the sludge would reduce sludge handling costs.~~ Additionally, disposal at the Central Maui Landfill has been determined to be an option of last resort. Drying sludge using waste heat was determined to provide the following benefits: operational stability, cost containment, and production of a Class A fertilizer for use on-island, which is the anticipated use ~~method proposed~~ for this ~~project~~product. The dried wastewater sludge fertilizer will comply with all appropriate safety and health~~the~~ provisions of 40 CFR Part 503, including ~~related to~~ contaminant composition.

Waste heat derived from the combustion of the renewable fuel from the CHP engine, combined with biogas fuel to fuel a sludge dryer, will provide the required heat for the drying of all the municipally generated wastewater sludge produced by the DEM's ~~wastewater reclamation facilities~~ WRFs on the island of Maui. After the drying process, the former wastewater sludge will be greatly reduced in volume and will be considered a Class A fertilizer that will be returned to the County of Maui for its use, likely as a soil amendment.

[1] Source: American Biogas Council. See www.americanbiogascouncil.org, Accessed 12/11/2017



Source: Central Maui Feedstocks LLC

Figure 3 Revised Agricultural Land Map

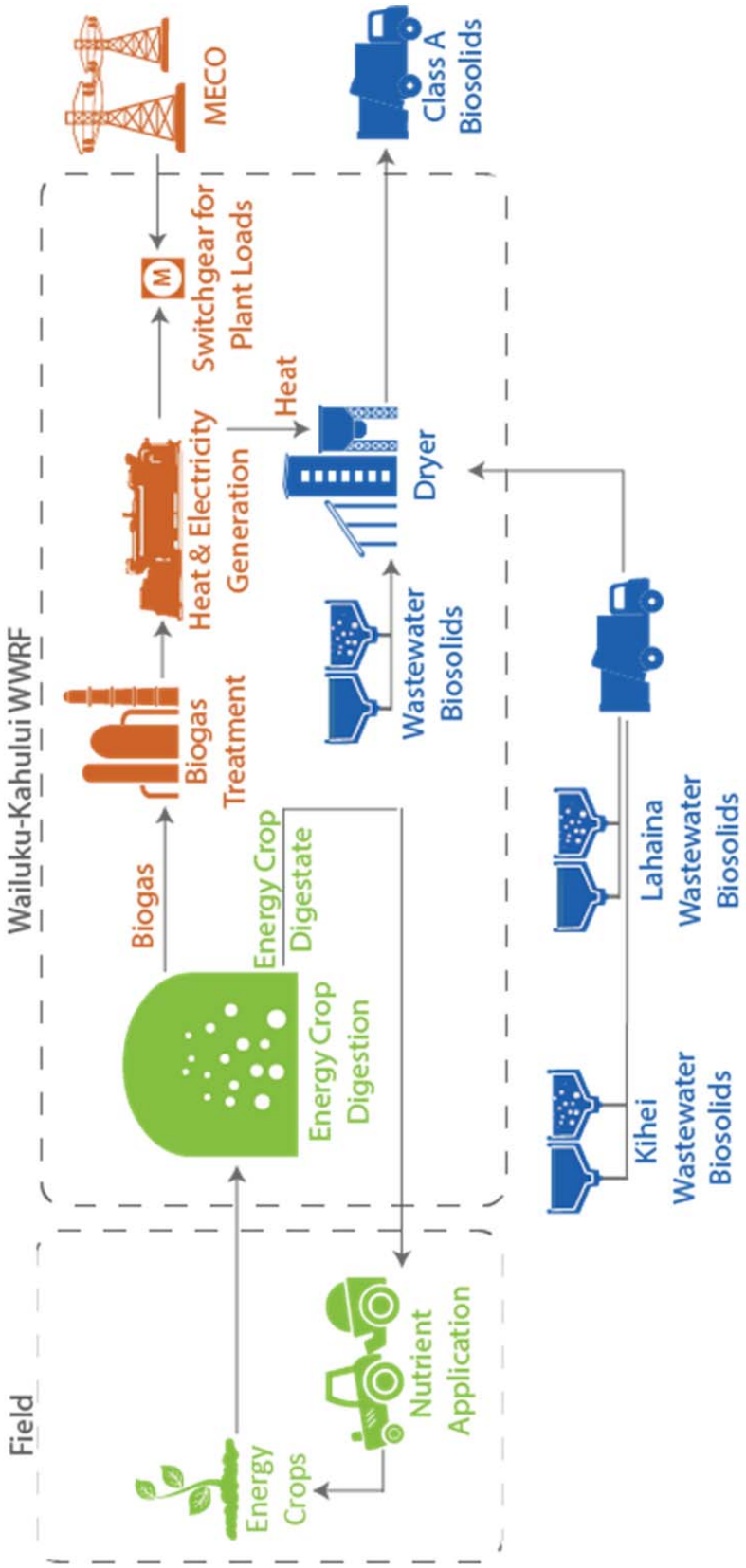
The inputs to the project's dual systems will be energy crops, likely cultivated on existing HC&S fields, (to the anaerobic digester) and wastewater sludge originating from the three municipal wastewater treatment facilities on the island of Maui. The usable outputs of the system will be electrical energy produced by the engine fueled by renewable natural gas produced by the digester, digestate (remaining organic material after digestion), and a Class A fertilizer/soil amendment, derived from the dewatered sludge. See **Figure 4**. The digestate will be returned to the agricultural land where the energy crops are cultivated for nutrient enrichment of the soil. The sludge-derived soil amendment may ~~will~~ be used by the County of Maui to offset the current cost of fertilizers. Therefore, the project results in zero landfilling of the two waste streams, which is an improvement over the current practices, which have resulted in stockpiling of a co-composted sludge product at the Central Maui Landfill.

The proposed anaerobic digester will be situated west of the proposed elevated covered concrete platform that will house the sludge drying and power generation equipment. See **Figures 5 and 6**. The proposed site for these main structures, including the energy crop receiving area and the biosolids storage bin, was evaluated thoroughly with the DEM to ensure the best site available as related to the mitigation of environmental impacts and integration of the project within the ~~continued operations of the~~ WKWWRF site. Several months were taken to analyze the project location, including consideration of past construction and approved EIS studies. The project is also entirely located outside of the 134-foot shoreline setback line. See **Appendix A**.

1.5 Chapter 343, HRS Compliance

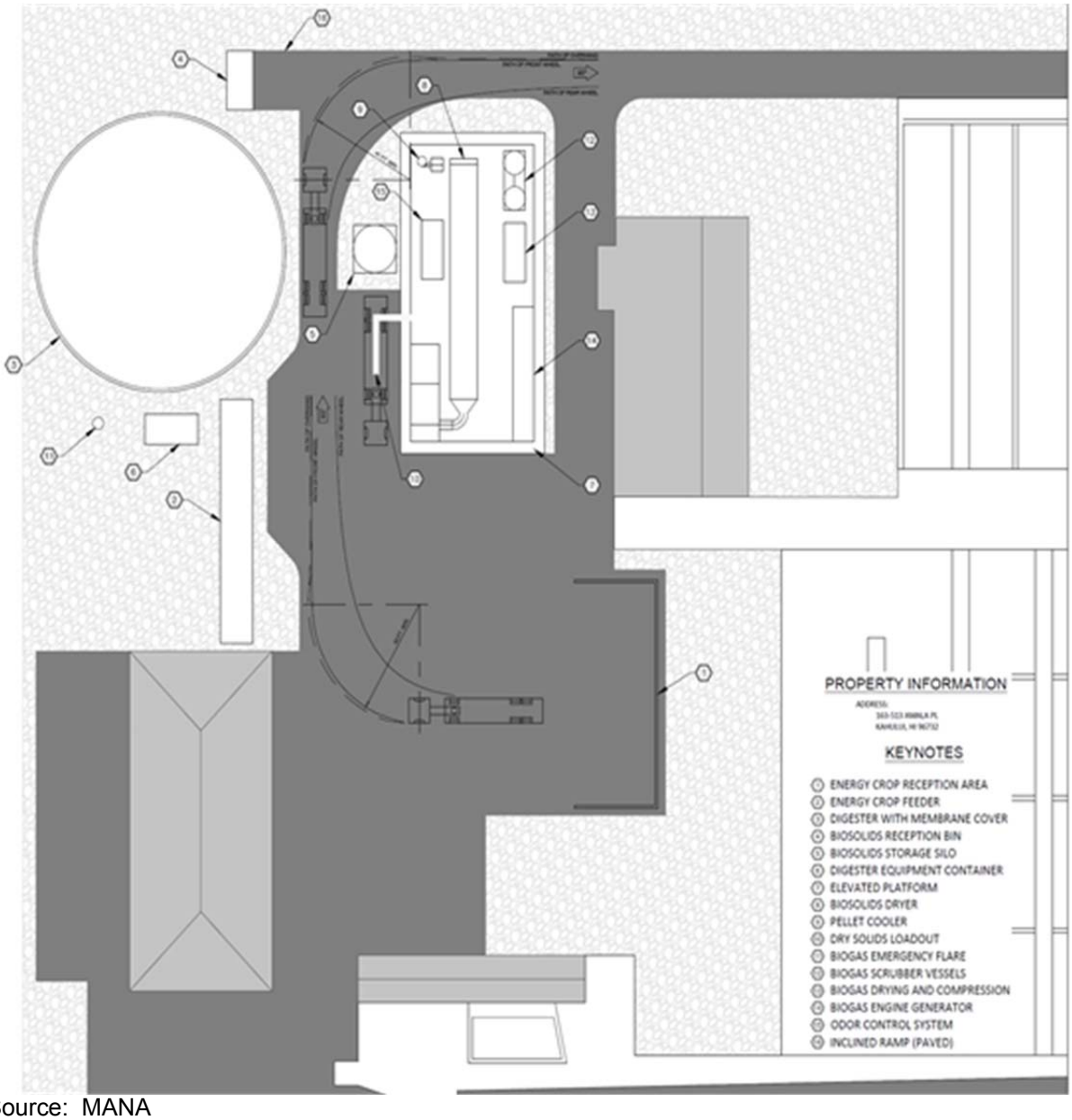
Chapter 343, HRS is an environmental review process that integrates the review of environmental concerns with existing planning processes of the State and Counties and alerts decision makers to significant environmental effects that may result from the implementation of certain actions. The EIS process additionally provides an opportunity for agencies and the public to express and to comment on environmental and other concerns related to the proposed project, which the applicant must consider and address. These concerns may also include economic and technical considerations and may alter the decision-making process for and eventual design of the project. This ~~Draft~~ Final EIS responds to ~~attempts to identify~~ concerns raised by the public and by government agencies, and describes how ~~to provide a framework for~~ ensuing impacts ~~are~~ will be addressed through development of mitigation strategies to minimize these impacts.

The ~~Draft~~ Final EIS was prepared in accordance with Chapter 343, HRS and Chapter 200, Title 11, Hawaii Administrative Rules (HAR). The County of Maui, through its DEM, will be the Accepting Authority in this EIS process. See **Appendix B**.



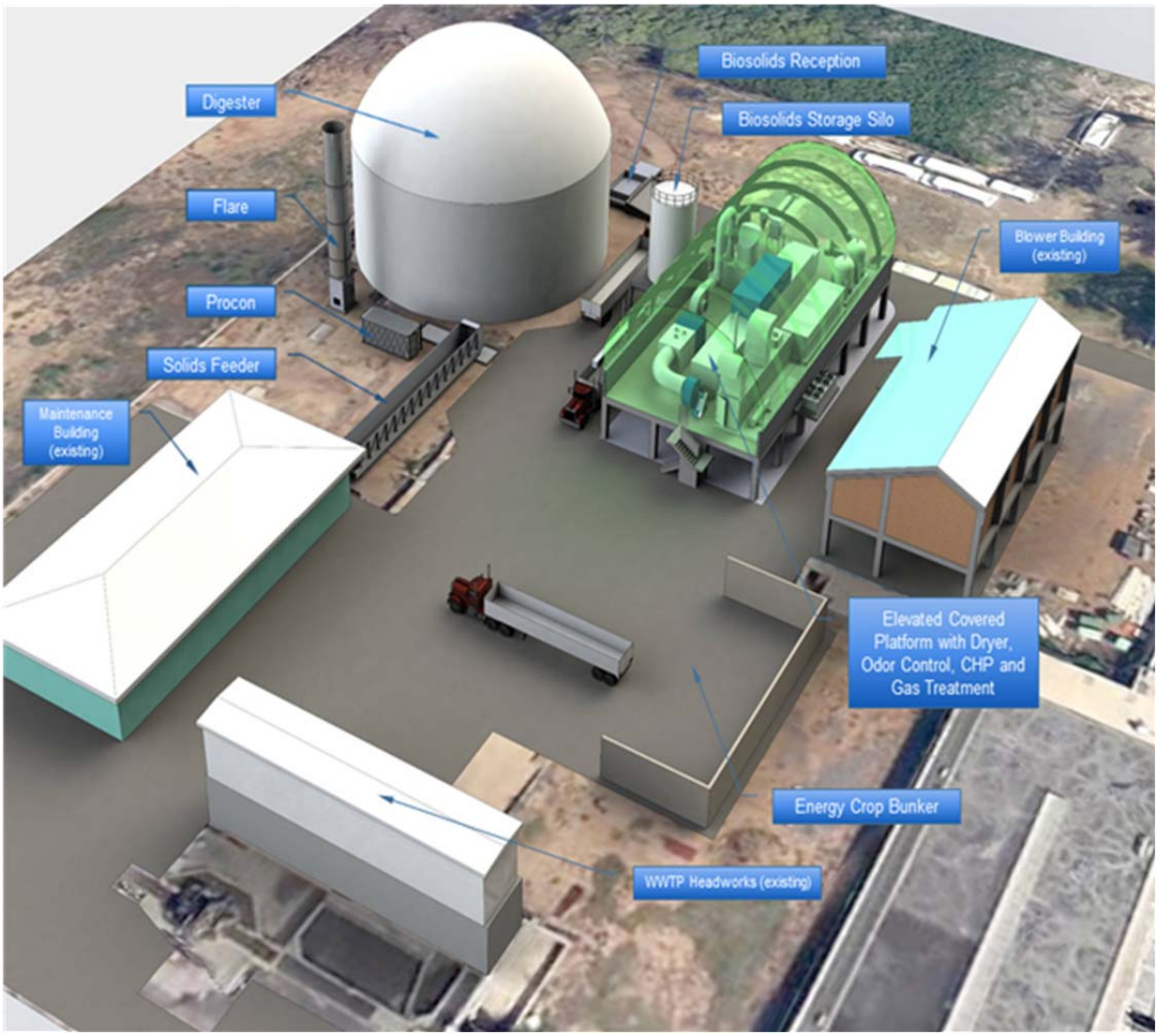
Source: MANA

Figure 4 Revised Project Process Flow Chart



Source: MANA

Figure 5 Project Site Plan



Source: MANA

Figure 6 Project Site Rendering

1.6 Permitting Requirements

The proposed project will be sited on land located within the State Land Use Conservation District and the County of Maui Special Management Area. The following project approvals are anticipated.

Federal Permits and Approvals

- Federal Aviation Administration Notice of Proposed Construction

State Permits and Approvals

- Conservation District Use Permit
- Department of Health Clean Air Branch, Non-Covered Source Air Permit
- Department of Land and Natural Resources Shoreline Certification
- Special Flood Hazard Area Development Permit (as applicable)
- National Pollution Discharge Elimination System Permit (as applicable)
- Department of Health approval of land application of digestate under HAR Chapter 11-62, Wastewater Systems or HAR Chapter 11-58.1, Solid Waste Management Control (as applicable)
- Historical Preservation District, Chapter 6E, HRS, and HAR Chapter 13-275, including an application for an Archaeological Inventory Survey and Archaeological Monitoring Plan, and approval of the study /plan and its findings
- Compliance with all applicable provisions of Chapter 11-62, HAR, Wastewater Systems
- Community Noise Permit (as applicable)

County of Maui Permits and Approvals

- Chapter 343, HRS, Environmental Impact Statement
- Special Management Area Use Permit
- Storm Water Pollution Prevention Plans
- Grading, building, electrical, plumbing and other construction permits

1.7 Project Schedule

The site lease is anticipated to be executed following acceptance of the EIS by the DEM and approval of the Conservation District Use Permit by the State. Project construction will commence once all the applicable permits and approvals are in place. The anticipated completion date for the required permitting is July 2018. Construction of the project would commence four months after this date (estimated in November 2018). Construction is forecasted to take nine months to complete with commercial availability of the project in September 2019.

1.8 Project Cost

This project ~~will be delivered as a service contract to the County of Maui and~~ will be privately financed, operated, and maintained. The electricity and sludge drying services will be provided to the WKWWRF via a services contract with the County. No County capital improvements are anticipated.

Chapter 2: Description of the Environmental Setting

2.1 Physical Environment

2.1.1 Land Use

Existing Setting

The subject property is located in an area that has a mix of industrial, park, commercial, and open space uses on the outskirts of Kahului town near Kahului Airport and Kahului Harbor. These uses were borne by the need of the community to provide for transportation, commerce, leisure, and infrastructure. This mix of land uses in the general vicinity has persisted for decades and it is likely that the composition of diverse land uses will continue well into the future.

The project site is located wholly within the County of Maui WKWWRF near the northern shore of Kahului. To the north of the WKWWRF is a sandy beach that is occasionally used by residents and visitors for leisure activities, such as sunbathing and fishing. The WKWWRF is bordered to the east by Kanaha Beach Park. To the west of the WKWWRF are industrial uses including Aloha Recycling and Island Grocery Depot. Across Amala Place, to the south, lies the Kanaha Pond Wildlife Sanctuary. Beyond the immediate vicinity of the WKWWRF, Kahului Airport and Kahului Harbor are other important infrastructure elements for the community. See **Figure 7.**

The subject property has been utilized by the County of Maui for wastewater treatment purposes for over four decades and is the only municipal wastewater treatment facility for the Wailuku, Kahului, Paia, and Waiehu areas. The proposed project is intended to supplement the existing wastewater treatment processes and is consistent with the long-standing use of the property for municipal purposes.

Energy crops grown to provide feedstock for the digester are expected to ~~will~~ be cultivated on former HC&S sugarcane fields. The crops to be grown have been selected for their energy content and suitability for digesting. Crops will be rotated, to include cover crops, to reduce the potential for pests and diseases and to help maintain soil health.

Initially, approximately 500 acres of former sugarcane fields located approximately two miles southeast of the WKWWRF are expected to ~~will~~ be devoted to the project. The crops will be chopped during harvesting to facilitate digestion, and will be transported by truck to the WKWWRF to be fed into the digester.

Source: Google Maps

Figure 7 Regional Location Map

Digestate will be periodically removed from the digester and trucked back to the fields to be land-applied as a soil amendment to replace nutrients for ensuing crops. The land application of digestate recycles the nutrients present in each crop back into the soil, thereby significantly reducing or eliminating the need for conventional fertilizer applications and providing for more sustainable agricultural production. The digestate will also add organic matter to the soil, helping to improve soil structure.

At the time of publication of the DEIS, the Department of Health (DOH) Wastewater Branch expressed some initial concerns about the agency's ability to monitor land application of digestate. *See* Chapter 9 of the DEIS. Since that time, MANA has continued to consult with the DOH Wastewater Branch during this environmental review process, to address DOH's concerns and ensure that all appropriate measures are developed prior to commencing the land application of digestate. Subsequently, DOH outlined requirements for development and implementation of a nutrient management plan, and the need for commitments to ensure monitoring. *See* FEIS, Appendix J, Letter Q. The nutrient management plan will be developed and implemented to ensure that disgestate is applied to the fields in agriculturally appropriate amounts, as determined in consultation with the Central Maui Soil and Water Conservation District, and subject to the approval of the DOH Wastewater Branch. ~~Digestate will be applied to the fields in agriculturally appropriate amounts consistent with a nutrient management plan developed for the project and in compliance with conditions of any required approvals from the State Department of Health (DOH).~~ The digestate will be incorporated into the soil during or shortly after application to reduce the potential for runoff and odors. Farming operations will be conducted in compliance with an approved Soil and Water Conservation Plan.

Potential Impacts and Mitigation Measures

The proposed project will enhance the County of Maui's ability to provide wastewater treatment by minimizing the resulting wastewater sludge weight and will also provide renewable energy for use at the WKWWRF. Consequently, the proposed project is consistent with the municipal wastewater land use of the subject property, and the cultivation of energy purpose crops is consistent with the agricultural designation of that property. Moreover, from a land use perspective, the proposed project is not anticipated to impact neighboring or proximate properties.

The lands expected to be devoted to feedstock production have been used for sugarcane cultivation for over 100 years. The proposed project will maintain these former sugarcane lands in active agricultural production, in keeping with County and State objectives to support agriculture and consistent with the land's designation as Important Agricultural Lands (IAL).

2.1.2 Climate

Existing Setting

The subject property is located in an area that is very temperate, not unlike other low-lying areas of Hawaii. The subtropical climate is evidenced by the area's moderate humidity and area temperatures being moderate with seasonal variability. Annual temperatures in the project area range from 63°F to 88°F and mean monthly temperatures vary slightly from 81°F in January and February to 88°F in August and September. The mean annual rainfall levels in the vicinity is approximately 18 inches.

Located proximate to the northern shore, moderate, frequently gusty, winds are normal, which account for excellent dispersion. Like other parts of Maui, this area experiences predominantly trade winds with occasional Kona winds. Trade winds originate from the northeast and prevail roughly 70 percent of the time, while Kona winds are from the south. Average wind speeds in the area range from 15 to 20 miles per hour (mph) with gusts over 35 mph.

Potential Impacts and Mitigation Measures

The climate of the area will not be impacted by the proposed project. Engineering Best Management Practices (BMPs) will be employed to minimize any potential short-term impacts to the local ambient air quality during construction activities. In addition, the project is designed to not impart significant negative impacts on the local ambient air quality in the longer term. In order to minimize temperatures related to the heat island effect, vegetation and landscaping will be planted to lower microclimate surface and air temperature through cooling via evapotranspiration.

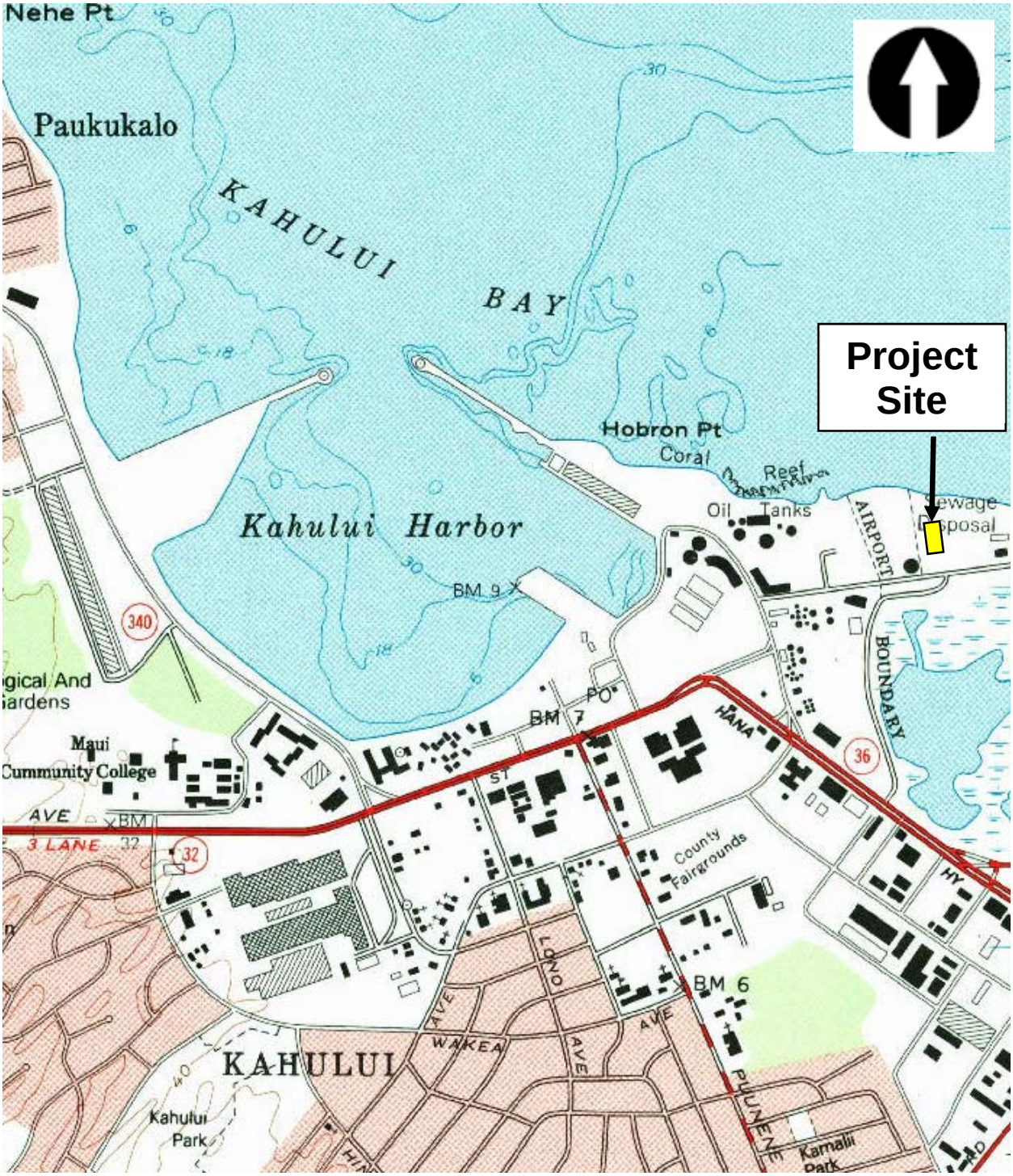
2.1.3 Geology and Site Topology

Existing Setting

The northern portion of the central valley of the island of Maui, where the WKWWRF is located, is the bottom of the slope of Haleakala. Consequently, the topography of the subject property is gently sloping and relatively flat – elevations do not exceed ten feet above mean sea level (MSL) with most of the property at five feet above MSL. See **Figure 8.**

Potential Impacts and Mitigation Measures

Project construction and implementation are not anticipated to impact the geology of the project area. The WKWWRF site, where the proposed new structures would be located, is highly developable being relatively flat to gently sloping. Consequently, relatively minimal alterations to the topography of the project site will be required. Excavation and trenching will be necessary during project construction.



Source: U.S. Geological Survey, Wailuku Quadrangle,

Figure 8 U.S. Geological Survey Map of the Wailuku Quadrangle

2.1.4 Soils

Existing Setting

There are three soil suitability studies that have been prepared for lands in Hawaii. Largely due to the importance of agriculture to the State of Hawaii, the primary focus of these studies is to differentiate land types for agricultural production through physical attributes and relative productivity.

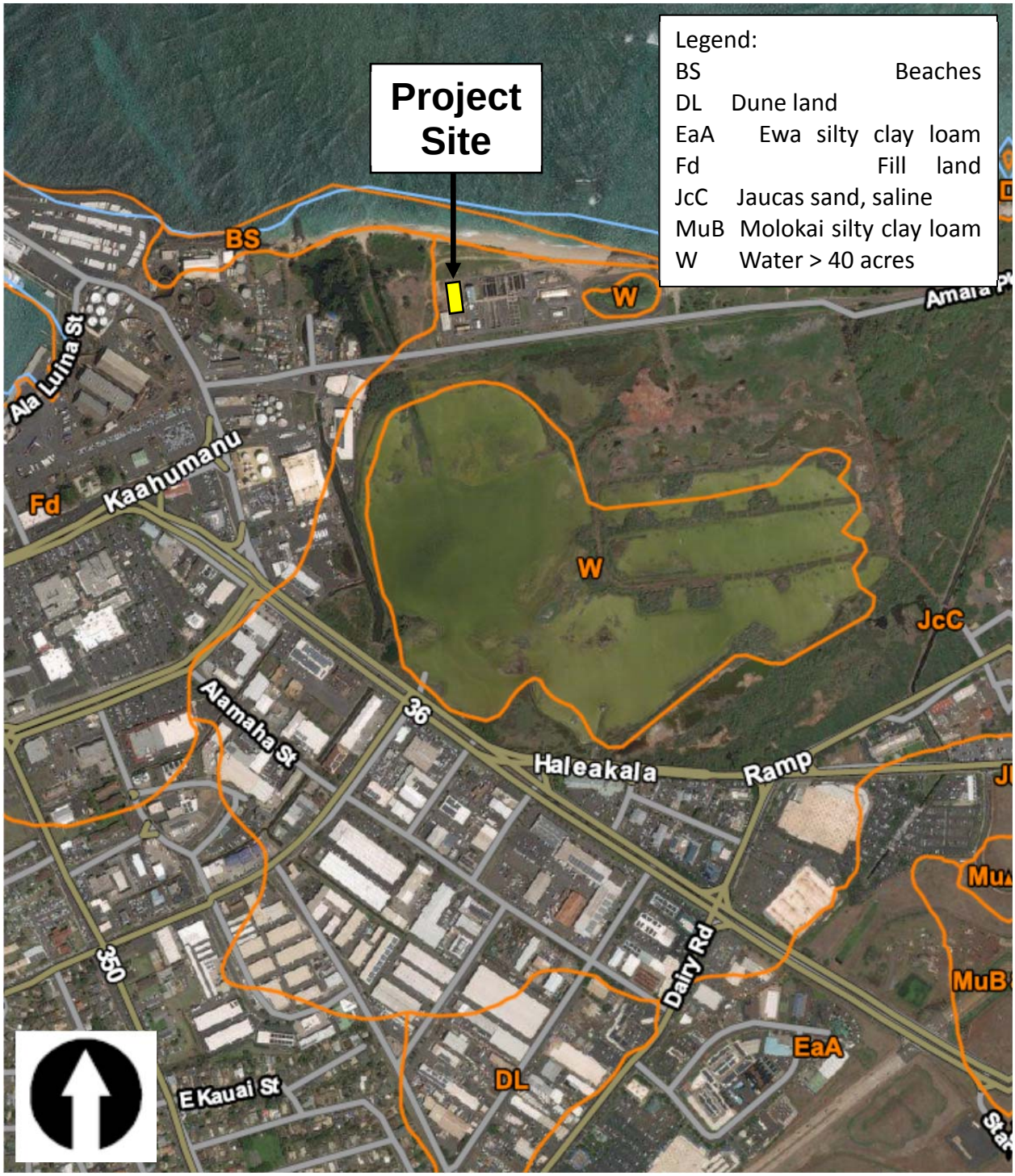
The three soil suitability studies are the U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) Soil Survey, the University of Hawaii (UH) Land Study Bureau (LSB) Detailed Land Classification, and the State of Hawaii Department of Agriculture's Agricultural Lands of Importance to the State of Hawaii (ALISH).

According to the USDA SCS Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, there are seven soil associations on the island of Maui, one of which is located at the WKWWRF. The soil association in the WKWWRF ~~project~~ area is the Pulehu-Ewa-Jaucas association defined as well-drained and excessively drained soils with a moderately fine to coarse textured subsoil occurring in basins and on alluvial fans.

Soils on the WKWWRF site are classified primarily as Jaucus sand, saline, 0 to 12 percent slope (JcC), Fill Lands (Fd), and Beaches (BS). JcC soils are found near the ocean in areas where the water table is near the surface and salts have accumulated. This soil is used for pastures, wildlife habitat, and urban development. It is poorly drained in depressions, but excessively drained on knolls. Fd is located on the western portion of the parcel and BS is located on the northern portion of the property fronting the beach. See **Figure 9.**

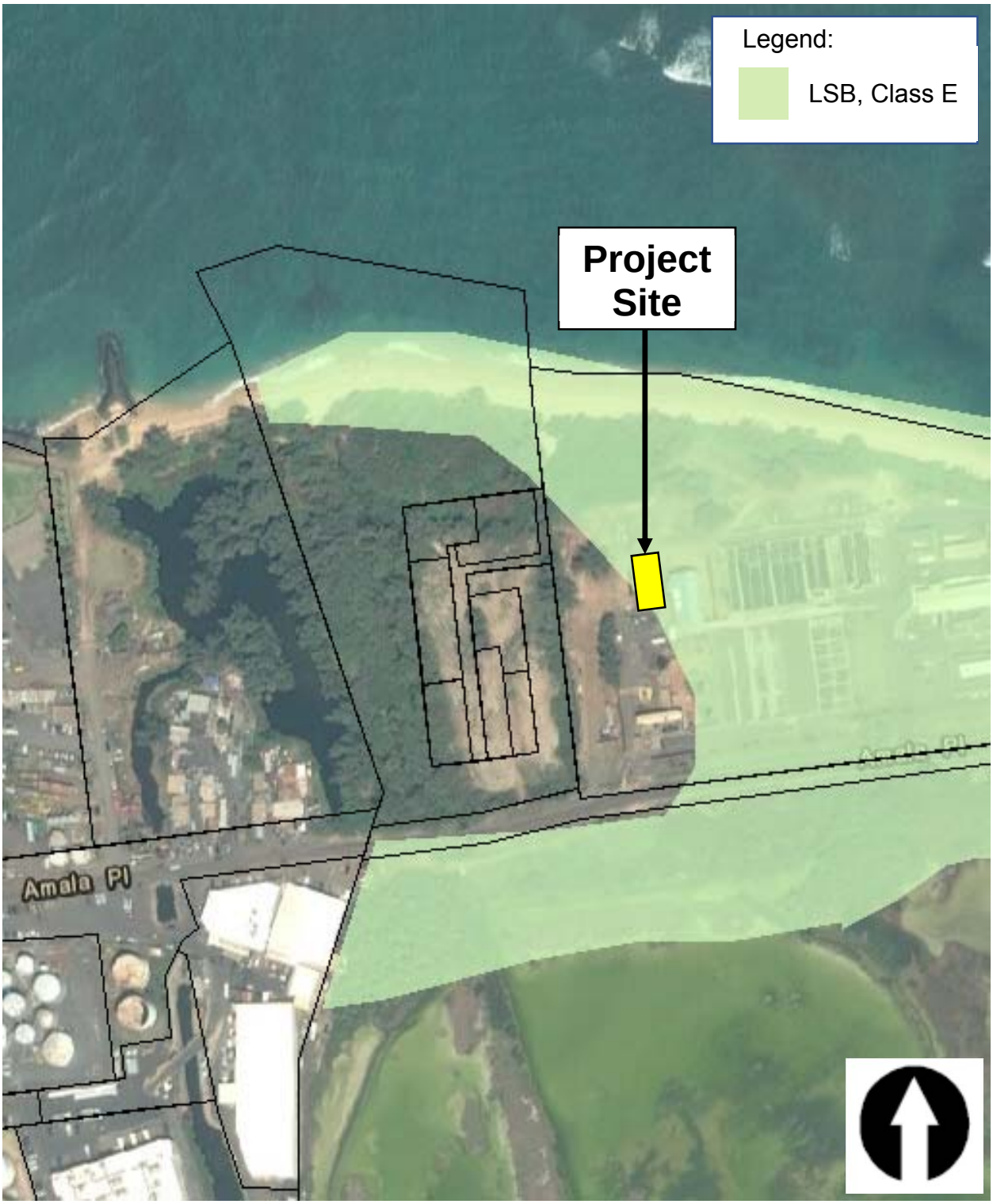
The UH LSB Detailed Land Classification details soil productivity levels on a scale of "A" through "E", with "A" representing the highest agricultural productivity rating and "E" representing the lowest level of agricultural productivity. Lands are also not classified if they are located in urban areas. The subject property is largely located within the "E" LSB designation, with the balance of the property "unclassified". The project site is located primarily in the "E" portion of the subject property. See **Figure 10.**

Another soil classification system in the State of Hawaii is the ALISH, which comprises three categories: "prime", "unique," and "other important" agricultural land. Lands that are not considered fertile for agricultural use are not classified. The subject property is not classified under the ALISH system. See **Figure 11.**



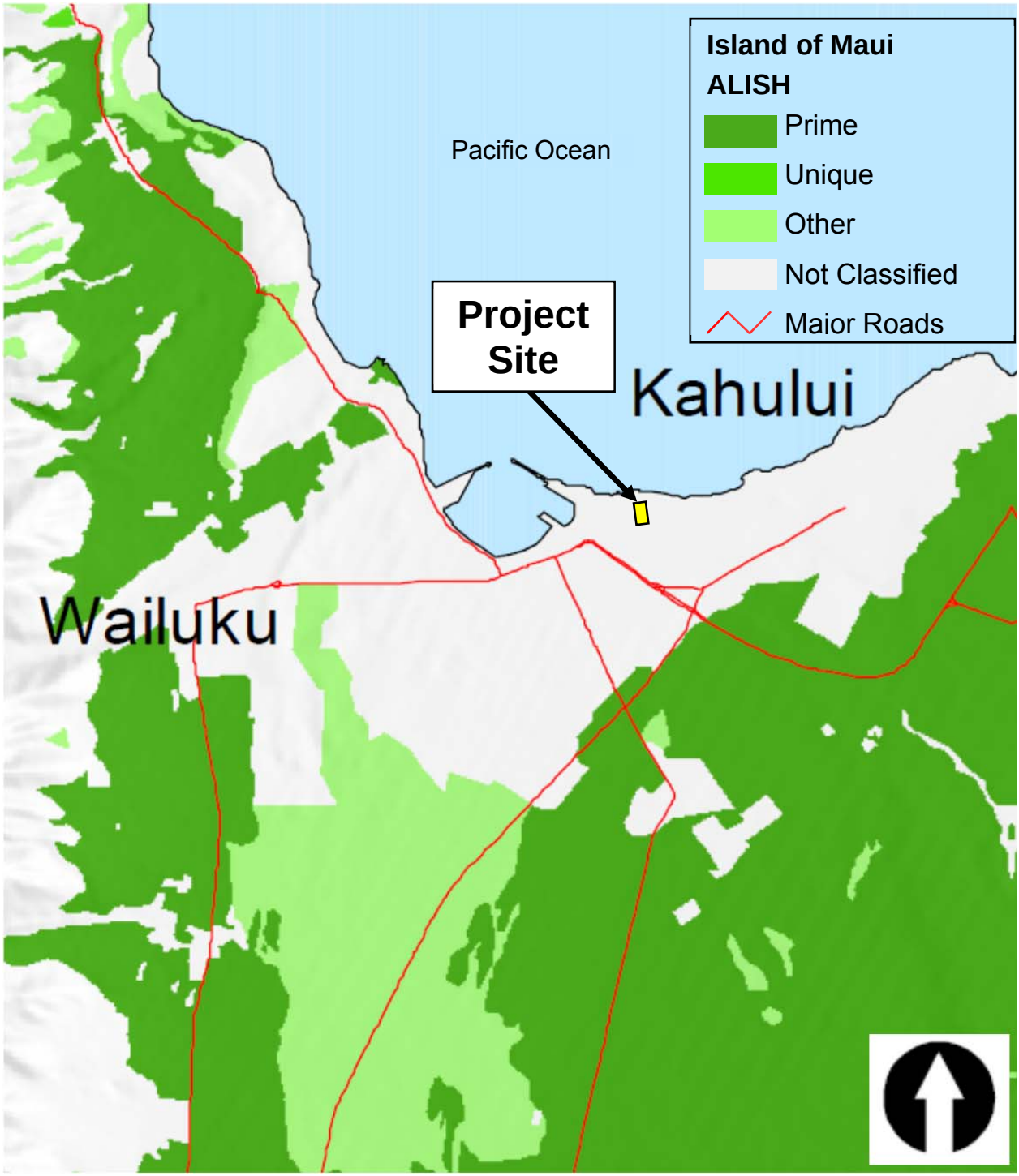
Source: U.S. Department of Agriculture, National Resource Conservation Service

Figure 9 USDA Soil Survey of a Portion of the Kahului Area



Source: State of Hawaii, Office of Planning

Figure 10 University of Hawaii Land Study Bureau Map



Source: State of Hawaii, Office of Planning

Figure 11 ALISH Map

There is an additional agricultural designation that was enacted in the last decade. Act 233 of the Hawaii State Legislature, which became effective in 2008, triggered the commencement of a process to identify, map, and designate important agricultural lands throughout the State of Hawaii. On the island of Maui, considerable areas of agricultural lands were designated as IAL. The ~~subject~~ WKWWRF property is not classified as Important Agricultural Lands. See **Figure 12.**

Lands ~~currently planned to~~ that may be devoted to feedstock production are Class A under the LSB Land Classification and are prime agricultural lands under the ALISH classification. These lands have also been designated as IAL.

Potential Impacts and Mitigation Measures

The soil composition is acceptable for construction of the proposed project within the WKWWRF property. Construction activities would result in slight impacts to the soils in the project area. The majority of the soil excavated will be reused onsite for backfilling purposes. Stockpiled excavated soil will be covered or otherwise protected with silt fencing to minimize erosion. Any remaining soil from excavation activities that will not be utilized will be first offered to the County of Maui for disposition. It is not anticipated that soil or sand will be removed from the WKWWRF property.

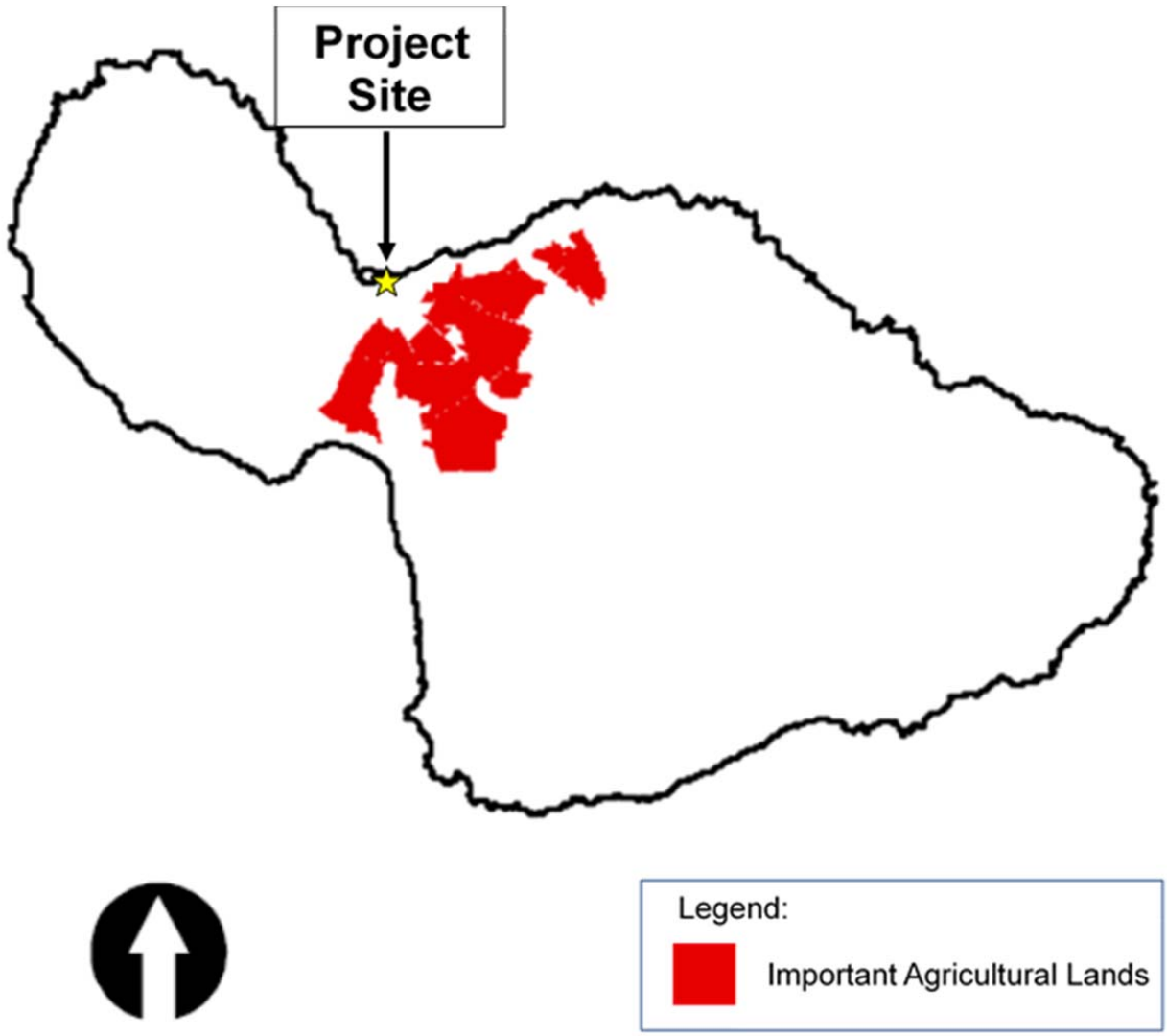
With respect to construction activities, mitigation measures will be implemented to minimize the potential for impacts. Since construction of the project may require grading of up to an acre of land, a drainage and erosion control plan would be prepared by a licensed engineer and will be submitted to the County of Maui, Department of Public Works for approval, as applicable.

The~~ir~~ anticipated use of Class A, prime agricultural lands designated as IAL for the continued cultivation of crops is consistent with each of these classifications, and continues the historic use of these lands for active agricultural activities.

2.1.5 Wetlands and Streams

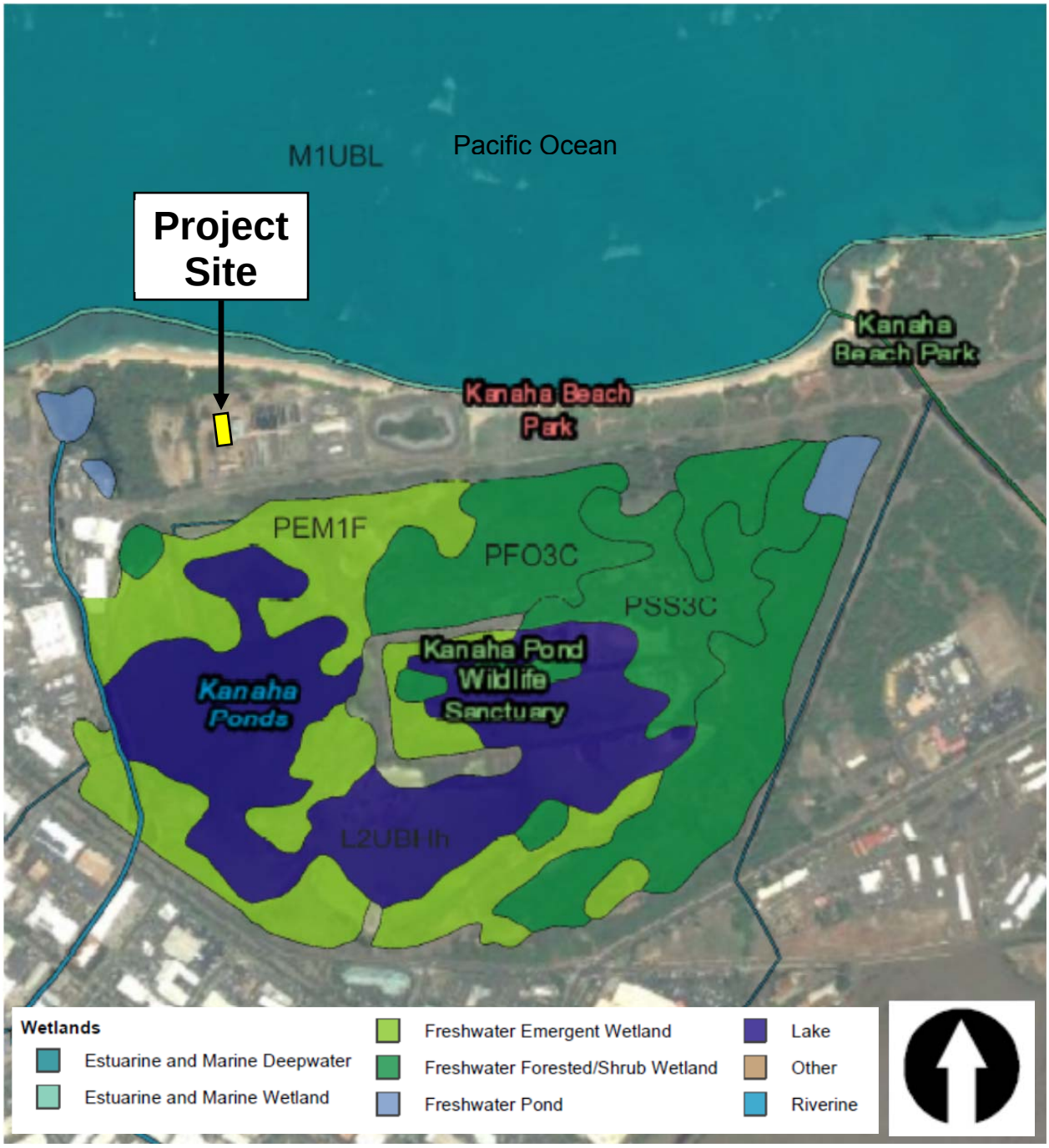
Existing Setting

Across the street from the WKWWRF is the Kanaha Pond Wildlife Sanctuary (KPWS), a 143 acre State of Hawaii facility that comprises large brackish water wetland features and an area for the general public to observe the natural beauty of the pond. The KPWS is home to three endangered bird species, the Hawaiian stilt, the Hawaiian duck, and the Hawaiian coot, as well as a variety of other bird wildlife. See **Figure 13**.



Source: State of Hawaii, Office of Planning, 2015

Figure 12 Important Agricultural Lands Map



Source: U.S. Fish and Wildlife, National Wetlands Inventory

Figure 13 National Wetlands Inventory Map

There is also a concrete reinforced stream, Kalialinui Stream, located approximately a quarter of a mile to the east of the subject property. Kalialinui Steam is the primary drainage outlet to the ocean for storm water originating from the Kahului Airport and the agricultural lands south and west of the airport. The stream is intermittent and has very little flow during the dry summer months.

There are no wetlands, streams, or gulches located within or adjacent to the agricultural fields currently planned to be dedicated to production of feedstocks for the proposed project.

Potential Impacts and Mitigation Measures

The proposed project will capture any increase in post-development site runoff. During construction, engineering BMPs, such as dust screens and silt fencing, as appropriate, will be employed to minimize fugitive dust to nearby properties. Consequently, the proposed project is not anticipated to impact wetland or stream resources in the general vicinity.

Agricultural production of feedstock will be conducted in accordance with an approved Soil and Water Conservation Plan to minimize erosion and runoff from the fields. Significant buffer zones exist between these fields and any nearby State waters.

2.1.6 Natural Hazards

Existing Setting

The island of Maui, like the rest of the Hawaiian Islands, is naturally prone to a variety of natural hazards, including local flooding, tidal wave (tsunami) inundation, hurricanes, earthquakes, and sea level rise. Over the last decade, the County of Maui has fortified the WKWWRF in an attempt to mitigate damage should a natural hazard occur. Specifically, the WKWWRF has been fortified through a myriad of capital projects to withstand a tsunami wave with a 20.1-foot wave height, including a recently extended shoreline revetment wall to protect the facility.

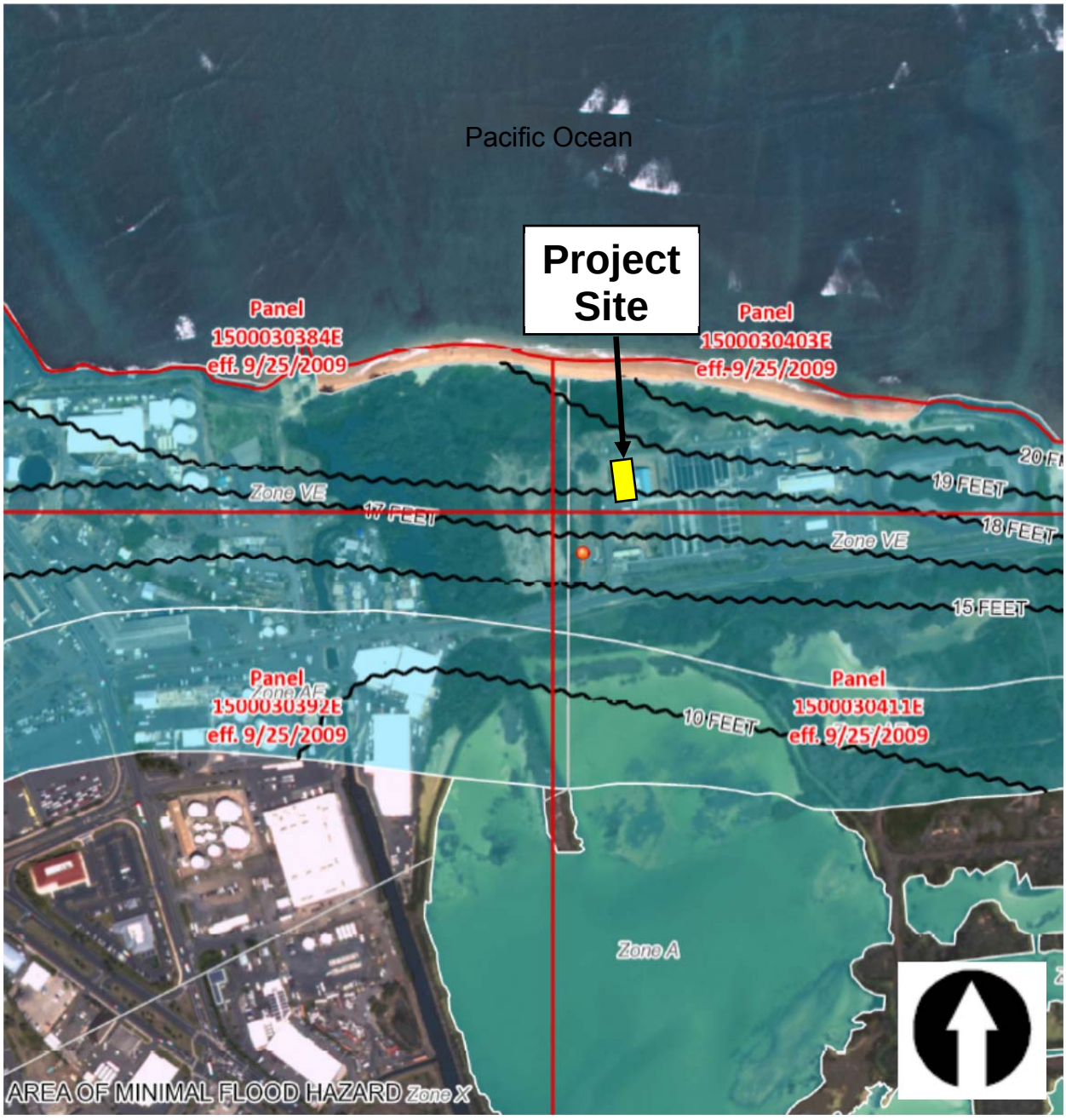
Floods. With respect to local flooding, the WKWWRF is located in Flood Zone VE, with base flood elevations of 15 to 20 feet above mean sea level (MSL), as designated by the Flood Insurance Rate Map (FIRM) prepared by the Federal Emergency Management Agency (FEMA), National Flood Insurance Program. See **Figure 14.** Climate change is anticipated to result in regional impacts on key indicators such as rainfall, frequency and intensity of climatic events, as well as mean sea levels (Pacific Islands Regional Climate Assessment (PIRCA), 2012). In Hawaii, climate change-induced conditions may result in increased precipitation and flooding.

Tsunami. Most tsunamis that impact Hawaii originate from seismically active areas around the Pacific. According to the Pacific Tsunami Warning Center, areas where tectonic plates are in collision, such as off of Alaska and off of South America, generate

most of the world's earthquakes which generate tsunami. In Hawaii, people have between roughly four hours (tsunami originating from Alaska) and ten hours (tsunami originating from Chile) to prepare for an incoming tsunami. The WKWWRF is located within the tsunami evacuation zone as designated by the Hawaii State Civil Defense. See **Figure 15**.

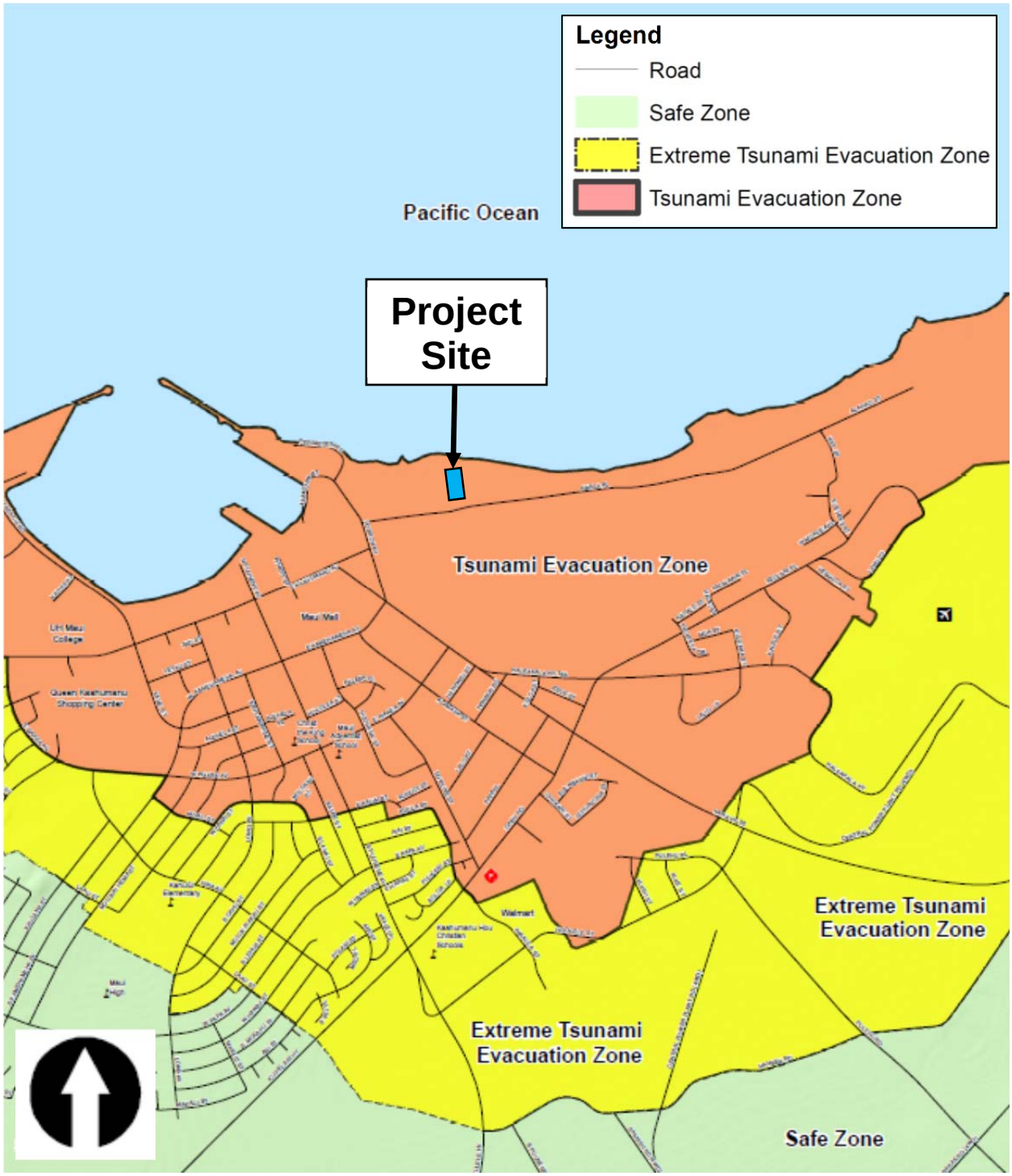
Hurricanes. Hurricane season in Hawaii is typically from June 1 through November 30 each year and while hurricanes are relatively rare in Hawaii, since 1980, two hurricanes have had catastrophic impacts on Hawaii – Hurricane Iwa in 1982 and Hurricane Iniki in 1992. While it is impossible to predict the occurrence and intensity of hurricanes, it is reasonable to assume that future incidents are likely, given historical events. The WKWWRF would likely be impacted primarily by the storm surge from a hurricane and by hurricane force winds damaging any trees or structures in the area. These impacts will be exacerbated with sea level rise due to climate change.

Earthquakes. According to the USGS, unlike other areas in the world where a shift in tectonic plates is most often the cause of an earthquake, in Hawaii, most earthquakes are linked to volcanic activity. Due to this unique situation, most of the thousands of earthquakes that occur in Hawaii each year are primarily located on Hawaii Island. The vast majority of earthquakes are so small that they are detectable only with highly sensitive instruments, but a few earthquakes have been damaging and caused significant impacts in the past.



Source: Federal Emergency Management Agency, Flood Rate Insurance Map, 2009

Figure 14 Flood Insurance Rate Map



Source: County of Maui, 2015

Figure 15 Tsunami Inundation Map

Sea Level Rise. Climate change is causing sea level rise, and inherent risk varies depending on sea level rise relative to land elevation. According to UH Sea Grant and the Center for Island Climate Adaptation and Policy (ICAP), sea level is expected to rise one foot by 2050 and three feet by 2100. While an accelerating rise in local sea level should be monitored, exact water levels cannot be determined because sea level rise predictions are inherently uncertain. Sources of this uncertainty include the timing and extent of climate change impacts, margin of error in predictive technology, and adaptation measures. Further, predictive models may not completely account for future shifts in human behavior to mitigate climate change.

Potential Impacts and Mitigation Measures

The project site is located in Flood Zone VE and may be impacted by flooding during storms. Due to the WKWWRF's proximity to the ocean, its elevations are near sea level and the potential impacts from flooding will be exacerbated as sea level rises as a result of global climate change.

The ICAP and the UH Sea Grant Program anticipate sea level rise of one to three feet from 2050 to 2100. Consequently, the proposed project will be built up above sea level behind the existing armored shoreline that protects the shoreline and the WKWWRF from erosion.

As a vital piece of infrastructure to the County of Maui, the WKWWRF has recently been fortified, in accordance with the FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED SHORELINE PROTECTION EXTENSION AT WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY, dated April 2013, ~~over the last decade~~ to withstand a tsunami with a 20.1-foot wave height. Project structures will be designed in accordance with County of Maui building code standards (local flood ordinance) as well as the rules and regulations of the National Flood Insurance Program as presented in Title 44 of the Code of Federal Regulations. By adhering to Federal and County of Maui building standards, impacts due to flood, tsunami, hurricanes, earthquakes, and sea level rise will be mitigated as best as possible.

2.1.7 Flora and Fauna

Existing Setting

Previously, the land in the vicinity of the project site within WKWWRF had been heavily disturbed, and now consists largely of fill material and gravel. The gravel likely was introduced for dust control and as a temporary surface for vehicular traffic. To assess the existing flora and fauna, a Biological Survey and Assessment was conducted for the project site. See **Appendix C**. Vegetation at the project site is sparse with largely non-native species and several commonly-found grasses, weeds, and flowering plants. No rare, threatened, or endangered flora was observed at the project site, nor was there special native plant habitats.

Evidence of noteworthy fauna in the area was not found. It is likely that the common, introduced mongoose frequent the general area, though none were spotted during the survey, nor was there evidence of mongoose habitat. While also not spotted during the pedestrian survey, it is assumed that rats and mice are prevalent in the area.

Due to the proximity of the project site to the KPWS, a number of species of avifauna (birds) were found to frequent the area. Six species of non-native birds were observed during the two site visits. While no native seabirds, or land or water birds were observed during the survey, four endangered species of birds, namely the Hawaiian stilt, Hawaiian coot, Hawaiian duck, and Hawaiian goose (nēnē), are known to exist nearby at the KPWS. It is unlikely that these birds would nest in the project site, considering the amount of human disturbance and activity that occurs on the property and the lack of habitat for feeding and breeding. A full list of avifauna observed or expected is included in the Biological Survey and Assessment.

In order to determine the possibility of the presence of the endangered, endemic Hawaiian hoary bat, a night survey was conducted as part of the Biological Survey and Assessment. Even with the biologist's recordings for crepuscular activities and vocalizations to perceive the presence of bats, no evidence of Hawaiian hoary bats was produced during the nighttime survey.

The Hawaiian goose or nēnē is occasionally found in and around HC&S sugarcane fields, including those planned to be dedicated to the production of feedstocks for the proposed project.

Potential Impacts and Mitigation Measures

Flora found at the project site is not significant and is representative of an arid, non-irrigated environment in Central Maui. Should trees be used in the landscape design, tree selection will give a preference to native species which will not include flowering or fruiting species that are known to attract insects and birds.

Since the project area is currently quite barren and devoid of foliage and ponds, it is unlikely that impacts to avifauna will occur during construction and operation of the proposed project. In order to minimize potential impacts, nighttime construction is not scheduled to occur. However, should nighttime construction occur, lights will be shielded and will be high enough to allow the lights to be pointed directly at the ground to reduce the possible interaction with nocturnal avifauna.

In regard to waterbirds (seabirds), to minimize the potential for a take, surveys for waterbirds by a qualified biologist will be performed, as applicable, before any land clearing or excavation activities. Further, if nests or broods are discovered, the project contractor will contact DOFAW and the USFWLS within 48 hours and will be provided by the results of pre-construction Hawaiian waterbird surveys. A 100-foot buffer will be established and maintained around all active nests and broods until the chicks/ducklings

have fledged. No potentially disruptive activities or habitat alteration will occur within this buffer during that time.

If a waterbird is present during ongoing construction activities, all activities within 100 feet of the bird will cease and the bird will not be approached. Work will continue after the bird leaves the area of its own accord. In addition, a post-construction report will be submitted to DOFAW and the USFWLS within 30 days of project completion. The report will include the results of Hawaiian waterbird surveys, the location and outcome of documented nests, and any other relevant information.

To minimize potential impacts to waterbirds during their breeding season, all outdoor lights will be fully shielded so the bulb can only be seen from below bulb height and only used when necessary. Automatic motion sensor switches and controls will be installed on all outdoor lights and lights will be turned off when human activity is not occurring in the lighted area. Nighttime construction is not anticipated and will be avoided particularly during the seabird fledging period of September 15 through December 15.

While evidence of the Hawaiian hoary bat was not observed, mitigation measures to reduce potential impacts will be implemented. To minimize the potential for impacts to this species, site clearing will be timed to avoid disturbance to breeding Hawaiian hoary bats; woody plant greater than 15 feet tall will not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Since there exists perimeter fencing for the WKWWRF, no barbed wire fencing, which could be problematic for the Hawaiian hoary bat, will be installed for the proposed project.

If it is determined that this project may affect Federally listed endangered or migratory bird species, the project contractor will contact the United States Fish and Wildlife Service (USFWS) office to discuss Endangered Species Act (ESA) compliance, and to discuss the application for an incidental take permit in accordance with Section 10 of the ESA.

Agricultural fields currently planned to be dedicated to production of feedstocks for the proposed project have been under continuous cultivation for sugarcane for over 100 years. Ongoing farming activities in these fields are therefore not anticipated to result in impacts to flora and fauna in the area. Existing policies and procedures relating to the presence of nēnē in the fields, coupled with close cooperation between HC&S and the DLNR and USFWLS, have helped to ensure that nēnē were avoided and not harmed by ongoing farming operations. These practices will continue to be adhered to and will be modified as appropriate with the change in crops.

2.1.8 Groundwater and Surface Water Resources

Existing Setting

~~In this area~~ Because the WKWWRF property is proximate to the shoreline, groundwater resources are brackish in nature and under the property there is a thin saline brackish

water lens. There are no potable water resources under the WKWWRF property; all potable water resources serving this area are located at higher elevations, specifically via the Iao Aquifer. Moreover, the subject property is located shoreward of the Underground Injection Control (UIC) line, established by the State Department of Health (DOH) to protect potable water resources. There are no existing surface water resources located on the project site. The nearest major surface water resources are the KPWS, Kalialinui Stream, and the Pacific Ocean.

There are no wetlands, streams, or gulches located within or adjacent to the agricultural fields currently planned to be dedicated to production of feedstocks for the proposed project. Former HC&S irrigation ditches are the only surface waters located within these fields. The fields are located shoreward of the UIC line.

Potential Impacts and Mitigation Measures

No significant impacts to groundwater underlying the project site are anticipated during the construction. Project construction is unlikely to introduce or release any substance into the soil that could adversely affect groundwater quality. Similarly, no significant impacts to groundwater are anticipated during operation activities. Energy crop/feedstock for the anaerobic digester will be appropriately transported and stored to eliminate any discharge to the ground surface.

Impacts to nearby surface water resources during construction of the project structures and associated ground disturbing activities are not anticipated. Engineering BMPs will be employed to ensure that disturbances during project construction, such as fugitive dust and stormwater runoff, are feasibly contained. Post-development runoff will be captured by drainage retention measures and the runoff will not flow into the surface resources in the area. Proposed landscaping and on-site drainage improvements will significantly reduce sediments in runoff as compared to the existing condition.

Since the project will cover less than one acre of land area ~~area~~, a National Pollutant Discharge Elimination System (NPDES) permit for discharged related to construction activities is not expected to be required. The Hawaii Department of Health administers the NPDES program, pursuant to the Federal Clean Water Act. If necessary, an NPDES General Permit for industrial storm water discharge will be obtained and a Storm Water Pollution Control Plan will be developed to minimize pollutant discharges to downstream properties.

The continued cultivation of agricultural crops in former HC&S sugarcane fields is expected to have no significant impact on groundwater or surface water resources. Overall irrigation needs for the production of feedstock crops are anticipated to be less than those for sugarcane. Drip irrigation will be utilized to maximize the efficiency of irrigation water applications.

As with past farming activities on these lands, agricultural production of feedstocks will be conducted in accordance with an approved Soil and Water Conservation Plan to minimize erosion and runoff from the fields. Digestate applications will be conducted in a manner that will minimize the potential for ponding and runoff of digestate from the fields. Planned practices include incorporation of the digestate into the soil at the time of application or shortly thereafter, avoiding excess applications, and avoiding applications when weather conditions result in significantly increased potential for runoff.

To minimize the potential for impacts to underlying groundwater, digestate will be applied to the fields in agriculturally appropriate amounts consistent with a comprehensive nutrient management plan developed for the project, and in compliance with conditions of any required approvals from the State DOH.

2.1.9 Archaeological and Historic Resources

Existing Setting

The project area has been used for wastewater treatment purposes since the mid-1970s. The site had been highly disturbed from the construction of the WKWWRF. A recent 2012 Archaeological Assessment Survey was conducted for another project at the WKWWRF (shoreline protection extension), just north of the project site (Fredericksen and Frey, 2012). During the 2012 surface walkover and subsurface mechanical testing, no significant material cultural remains were located. Archaeological monitoring was performed during earthmoving activities per the previously accepted monitoring plan (Fredericksen, 2007; State Historic Preservation Division (SHPD) Doc No: 0801JP06). No significant material culture remains were located during the subsequent archaeological monitoring program for the tsunami revetment construction project at the WKWWRF (Fredericksen, 2015). The monitoring report was subsequently accepted in 2016 (SHPD Doc No: 1601MD23).

Further, several archaeological studies had been conducted in the vicinity in the past, including several on Kahului Airport property and Kanaha Beach Park. Archaeological features such as human burials, a subsurface terrace wall, and WWII-era structures were found on Kahului Airport property to the south. WWII-era structures were also found at Kanaha Beach Park to the east north east.

Potential Impacts and Mitigation Measures

After consultation with the SHPD Maui Lead Archaeologist, an Archaeological Inventory Survey will not be required for the project, since a number of previous surveys have been conducted for the WKWWRF ~~subject~~ property. An Archaeological Monitoring Plan will be required by the SHPD and will be prepared by Xamanek Researches LLC. Per discussions with the Maui SHPD Lead Archaeologist, 100% archaeological monitoring will be conducted. See **Appendix D**.

In preparation for construction, an Archaeological Monitoring Plan, which details 100% monitoring by an archaeologist permitted to conduct work in the State of Hawaii will be prepared. The purpose of the Archaeological Monitoring Plan will be to identify and document any subsurface historic properties found during construction related activities. The Archaeological Monitoring Plan will be submitted to and accepted by the SHPD prior to the commencement of construction activities. Should significant subsurface historic properties be found at the project site during construction, work will cease immediately, and the archaeological monitor will contact the SHPD for assessment and appropriate mitigation measures.

Agricultural fields currently planned to be dedicated to production of feedstocks for the proposed project have been under continuous cultivation for sugarcane for over 100 years. Continued agricultural production is therefore not anticipated to impact archaeological or historic resources.

2.1.10 Cultural Resources

Existing Setting

The Wailuku ahupua'a stretched from the mountains to the shore and included the areas now identified as the towns of Wailuku and Kahului. The Kahului area where the project is located, is a coastal flat that flourished with the advent of sugar cane. In 1882, Claus Spreckels was granted a portion of the Wailuku ahupua'a and established HC&S that same year. Alexander & Baldwin purchased HC&S in 1926, which helped to consolidate sugar plantations on the island.

The town of Kahului grew as sugar expanded and many warehouses, stores, metalworks, and businesses developed in the area to support the sugar industry. Kahului Harbor also evolved around this time to become a vital shipping hub for the island's residents, businesses, and industries. In the general vicinity of the project site, dredged material from Kahului Harbor was utilized to fill in areas that were previously marsh lands.

A Cultural Impact Assessment was prepared for the proposed project, which included ethnographic interviews to provide local insight to cultural practices which have occurred. See **Appendix E**. Individuals were selected based on their knowledge of history of the general area of the project site, as well as their cultural understanding of the immediate coastal area. Generally speaking, interviewees revealed that, aside from use of the shoreline for fishing, octopus (tako) diving, limu picking, and related recreational activities in the near shore area, they were not aware of cultural practices occurring in the general vicinity of the project site.

Mr. Robert Hobdy

Prior to retirement, Bob Hobdy had been a wildlife biologist for the Department of Fish and Wildlife (DOFAW) for almost four decades. Mr. Hobdy presented a wealth of

information on the history of Kanaha Pond, including DOFAW efforts to protect wildlife and to profligate native plants. Mr. Hobdy spoke of the filling of the Kahului area from Kanaha Pond to Kahului Beach Road with the dredging of Kahului Harbor in 1910, which set the stage for development in that area in later years.

He also recalled the fencing of Kanaha Pond in the late 1970's or early 1980's, which served to keep feral dogs out of the pond area and provided some protection of the wetland resource from trespassing. Kanaha Pond has considerable historical value as both a wildlife sanctuary and a former inland fishpond from early Hawaii.

Regarding current cultural practices, Mr. Hobdy stated that public access rights to and along the shoreline were important for the community to continue fishing, diving, and other recreational activities at Kanaha Beach Park.

Mr. Clifford Naeole

Mr. Naeole was born and raised on Maui and is of Hawaiian descent. As a child, Mr. Naeole accompanied his grandfather who would dive the entire length of Kanaha Beach. Mr. Naeole grew up frequenting the beaches in Kahului, a town where at the time was small with limited development.

Mr. Naeole fondly recalled fishing as being widespread in the area, with the species of fish commonly found being ulua, halalu, manini, aholehole, kawakawa, and barracuda. Other area activities he noted were crabbing, opihi picking, and limu gathering. He is aware that people still use the area for fishing, diving, surfing, canoe paddling, and shoreline gathering activities.

Ms. Hokulani Holt

Ms. Holt was raised in Waiehu and her familial roots in the area go back six generations. Ms. Holt would frequent beaches in the Kanaha area to engage in limu gathering, fishing, and collecting kiawe wood. She also witnessed others participating in net-laying, diving, and throw-netting activities. In addition to these activities, Ms. Holt mentioned that bright orange flowers of the kaunaoa, a native Hawaiian plant, would be gathered along Kanaha beach for lei-making. Many of these activities still occur in the present day.

Ms. Holt brought up concerns about public access and alterations affecting the ocean environment. She hoped that existing public access opportunities would remain and that fishing spots offshore and marine habitats would not be negatively impacted.

<u>Potential Impacts and Mitigation Measures</u>

The project site has previously been disturbed and heavily modified over the past four decades as the WKWWRF. Due to the absence of cultural activities occurring within the WKWWRF and the project site, the proposed project is not anticipated to impact

cultural resources in the area. Public access to the shoreline for fishing, octopus diving, subsistence, and other shoreline activities will not be changed after project implementation. The proposed project will not impact the exercise of Native Hawaiian rights related to access, gathering, or other customary activities.

Agricultural fields currently planned to be dedicated to production of feedstocks for the proposed project have been under continuous cultivation for sugarcane for over 100 years. Continued agricultural production is therefore not anticipated to impact cultural resources.

2.1.11 Visual Resources

Existing Setting

Sited between Amala Place and a sandy beach in Kanaha, the project site is located proximate to the shoreline. Public views of the shoreline from Amala Place are currently largely obscured by a collection of ironwood trees, shrubbery, and the existing improvements at the WKWWRF. See **Figure 16.** Anticipated impacts to and along the shoreline will be limited as the proposed project is located entirely within the municipal WKWWRF footprint.

The project site is viewable from a portion of Hana Highway. From Hana Highway, the WKWWRF is evident beyond the KPWS. See **Figure 16.** However, the project site is similar to ~~not unlike~~ the other structures in the WKWWRF and would blend into the existing industrial landscape of the immediate vicinity, which includes the WKWWRF as well as gas storage tanks and commercial buildings of similar nature. See **Appendix A**.

Potential Impacts and Mitigation Measures

The proposed project is designed to cover less than an acre of property, with structures generally less than 70 feet in height above grade and with an exhaust stack of 59 feet in height. See **Appendix A**. Because the digester and stack will be visible, there will be some visual impacts, as depicted in **Figure 16.** However, it should be noted that there are similar structures in the vicinity of the proposed project, such as the industrial buildings along Amala Place closer to Kahului Harbor, Hawaii Gas' propane storage facilities, Kahului Power Plant and its 198-foot-high stack, and Kahului Harbor facilities, which are also visible from Haleakala Highway. There are also structures related to Kahului Airport and associated jet fuel storage structures that are notable and visible from Haleakala Highway and the general vicinity. Therefore, the project is generally consistent with the established visual impacts associated in the area.

Visual impact mitigation measures will include implementation of a site landscaping plan ~~Landscaping will be installed~~ to buffer the impact of the project infrastructure on the existing view plane of the immediate area, choosing the best color scheme for structures, and blending the structures with the existing site infrastructure to the extent possible. Consequently, impacts to visual resources will be minimized and the project

infrastructure will be designed to blend in as best as possible with the existing industrial structures of the WKWWRF and surrounding businesses and area activities.

Agricultural fields currently planned to be dedicated to production of feedstocks for the proposed project have been under continuous cultivation for sugarcane for over 100 years. Continued agricultural production is anticipated to have a net positive impact on visual resources by helping to maintain the rural character of the area.

View from Kanaha Pond parking lot toward the WKWWRF (existing)

View from Kanaha Pond parking lot toward the WKWWRF (proposed)

Figure 16 **Revised View Plane Photographs**

2.1.12 Air Quality

Existing Setting

The existing air quality at the WKWWRF is generally good, with slight impacts on air quality from the existing aerobic wastewater treatment process utilized at the WKWWRF. The frequent trade winds help to quickly disperse ~~any releases~~odors from the current wastewater treatment process. Nearby, MECO's Kahului Power Plant, located in the harbor area to the west of the WKWWRF, presents the largest impact to air quality in the vicinity. As the largest stationary point source of emissions in the area, the Kahului Power Plant burns fossil fuel and its 198-foot-high stack minimizes impacts to air quality by allowing for dispersal of contaminants. In addition, to a lesser extent, vehicular traffic on Hana Highway and Amala Place and airplanes utilizing Kahului Airport, pose another existing impact to air quality in the general area.

The State DOH maintains a number of air quality monitoring stations throughout the state and the closest station to the project site is the Kahului Station located along Maui Lani Parkway in Kahului, which is surrounded by residential properties. The Kahului Station, which is approximately three miles from the project site, only currently measures concentrations of $PM_{2.5}$ (particulate matter that is 2.5 microns or less in diameter), wind direction, and wind speed. Measured $PM_{2.5}$ levels have historically been low at the Kahului Station. The Kahului Station is slated to be a special purpose monitoring station (SPMS) that includes monitoring of pollutants carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2); however, those monitoring parameters are not yet available.

Potential Impacts and Mitigation Measures

The proposed project will rely on anaerobic digestion technology which utilizes anaerobic bacteria in a sealed ~~the~~ biodigester to break down organic matter (energy crops) and produce biogas as a result. The ~~volatile~~ organic matter is converted to biogas composed of methane (CH_4), which is the primary component of natural gas and which is also a greenhouse gas with an elevated global warming potential if released to the environment. Another ~~large~~ component of the gas generated in the digester is carbon dioxide (CO_2), which comprises up to roughly 40 percent of the gas. The remaining 10 percent is a mixture of other compounds including oxygen, nitrogen, and other volatile organic byproducts of digestion. Because the feedstock for the gas is energy crops, greenhouse gas directly emitted by the project are considered "biogenic CO_2,"[2] which is generally not attached to climate change impacts.

The biodigester is a fully-enclosed tank that captures the biogas, preventing release of methane to the atmosphere. From the digester, the biogas is piped to a treatment unit, which removes moisture and contaminants using filters to minimize emissions from the

[2] See definitions of "biogenic CO_2" and "biomass" found in 40 CFR §98,6

CHP engine, and to remain under permitted limits regulated by the State DOH, Clean Air Branch. In addition, the sludge dryer will be contained within a fully-enclosed building to minimize air quality impacts. Based on the results of the Air Quality, Odor, and Climate Change Impact Assessment, the proposed project will not cause or contribute to exceedance of any national or local ambient air quality standards. See **Table 1** and **Appendix F**.

Table 1. Air Quality Impacts of Project Operation

Parameter	Statistic	Modeled Concentration, $\mu g/m^3$	Maximum Background Concentration, $\mu g/m^3$	Total Concentration with Background, $\mu g/m^3$	Strictest Standard, $\mu g/m^3$
24-hour PM_{10}	Maximum	9.68	39	48.7	150
Annual PM_{10}	Annual average	3.07	16	19.1	50
24-hour $PM_{2.5}$	98^{th} percentile	7.43	12[a]	19.4	35
Annual $PM_{2.5}$	Annual average	3.07	4.8[a]	7.9	12
1-Hour NO_2	98^{th} percentile	31.11	43.2[a]	74.3	188
Annual NO_2	Annual average	7.66	7.5	15.2	100
1-Hour CO	Average of daily max. conc.	90.73	1,000	1,090.7	10,000
8-Hour CO	Average of daily max. conc.	55.53	778	833.5	5,500
1-Hour SO_2	99^{th} percentile	0.96	3.6[a]	4.6	196
3-Hour SO_2	Average of daily max. conc.	0.95	5.2	6.2	1300
24-Hour SO_2	Maximum	0.76	21	2.9	365
Annual SO_2	Annual average	0.24	5.3	5.5	80
1-Hour H_2S	2^{nd} high	0.21	7	7.2	35

Note:
a. Background concentrations shown are three-year average values, in accordance with the form of the applicable standard.

During the construction phase of the project, there will be short-term impacts to air quality largely related to fugitive dust from ground-altering activities. These impacts will be mitigated by utilizing silt fences, covered stockpiles, and wind screens and frequent watering of the active project site. In addition, open trucks will be covered to minimize wind-blown dust. Vehicular exhaust from construction vehicles will be another impact to air quality. To minimize impacts, construction vehicles will be properly maintained and will not be left idling for long periods of time.

During commercial operation of the facility, air quality impacts will be addressed by utilizing a 59-foot tall stack to disperse any remaining contaminants generated in the anaerobic digestion and sludge drying processes. These contaminants are described in the Air Quality, Odor, and Climate Change Impact Assessment found in Appendix F,

and will be appropriately examined during the State DOH Air Quality permitting process. As a result, air quality impacts to the vicinity will be addressed and will not significantly affect air quality in the area.

From a community perspective, air quality is anticipated to improve after project implementation. This project is anticipated to generate close to 1.0 MW of electricity, generated from renewable natural gas from the anaerobic digestion process. RNG is a much cleaner burning alternative to the existing fossil fuel based MECO generation that currently serves the WKWWRF. The displacement of diesel combustion for power generation by the use of RNG as a fuel will be examined and quantified through the air permitting process.

Agricultural fields currently planned to be dedicated to production of feedstocks for the proposed project have been under continuous cultivation for sugarcane for over 100 years. Air quality impacts from ongoing farming in these fields are anticipated to be less than those from sugarcane cultivation, chiefly due to the fact that agricultural burning is not necessary for the harvesting of the feedstock crops.

As with any farming operation, the production of feedstock crops has the potential to result in fugitive dust from activities in the fields. Appropriate Conservation Management Practices (CMPs) will be implemented to help control fugitive dust emissions from the ongoing farming operations. Farming will be conducted in compliance with State DOH regulations requiring reasonable precautions to minimize fugitive dust from agricultural operations.

2.1.13 Noise

Existing Setting

At the WKWWRF property boundary, the maximum noise level allowed by the State DOH is 70 dB(A). Existing noise sources from the WKWWRF are primarily due to aeration activities in the basins, pumping activities, and general maintenance activities by the County staff. In general, additional ambient noise sources along the boundary of the subject property include wind and bird noises and automobile traffic, which are all generally low noise levels.

Agricultural fields currently planned to be dedicated to production of feedstocks for the proposed project have been under continuous cultivation for sugarcane for over 100 years. Noise impacts from ongoing farming in these fields are anticipated to be less than those from sugarcane cultivation. Moreover, these fields are located in close proximity to two major roadways and a short distance from the Kahului Airport, making it unlikely that ongoing farming operations will be a significant contributor to noise in the area.

Potential Impacts and Mitigation Measures

During construction, activities will be carried out in accordance with Federal, State and County laws and regulations, including HRS Chapter 342F, Noise Pollution, and Hawaii Administrative Rules (HAR) Title 11, Chapter 46, Community Noise Control. Audible construction noise will not be avoidable during project construction. According to HAR Title 11, Chapter 46, construction activity is permitted Monday through Friday from 7:00 am to 6:00 pm and Saturday from 9:00 am to 6:00 pm. Project construction will comply with these time restrictions to the extent practicable. If construction activities are anticipated to exceed the maximum permissible sound levels or if work will occur outside of normal hours, a Community Noise Variance will be secured.

The project contractor may be instructed to obtain a noise permit by the State DOH to limit the times when high volume construction may occur. In addition, the State DOH may instruct the contractor to implement noise mitigation measures during construction and to conduct noise monitoring if the high noise levels are sustained for long durations or if the project generates nuisance noise levels.

For facility operation, necessary mitigation measure will be implemented to ensure that the facility does not exceed the State DOH noise limit of 70 dB(A) at the WKWWRF property boundaries during operation.

2.1.14 Odor

Existing Setting

Due to the inherent nature of treating wastewater, odorous conditions are currently present at the WKWWRF. The odors emanate from organic decomposition of wastewater and one particular compound, hydrogen sulfide, H_2S, is a byproduct of wastewater digestion. Hydrogen sulfide, which imparts a foul odor, is minimized by maintaining aerobic conditions through the treatment process to minimize septic conditions and the generation of H_2S. The frequent trade winds in the area help to disperse odors.

Potential Impacts and Mitigation Measures

The project will generate odorous conditions during the wastewater sludge drying process. ~~A~~ Mitigation measures will include use of a dryer control system ~~will~~ to manage these odors from the sludge drying process. The dryer will be contained and operated at ~~a slight~~ negative pressure, such that ambient air will be forced into the dryer and all odorous air will be piped through the dryer condenser and a wet exhaust scrubber prior to release to the environment. The air control system will be used to minimize dust from drying to the air.

Odor is inherently complex to quantify as it is comprised of a mixture of chemical substances and its intensity is associated with its perception by olfactory senses. There

are currently no State DOH or County of Maui standards on ambient odor levels, except for the nuisance ordinance in Chapter 20, Maui County Code, related to "public nuisance…in such a place as to cause annoyance, detriment, or injury to the health of persons or damage to property."

Dispersion modeling was conducted as part of the Air Quality, Odor, and Climate Change Impact Assessment to assess the potential impact of odor utilizing an empirical odor unit calculation. See **Appendix F**. In the calculation, hydrogen sulfide and ammonia were assumed to be the primary odor causing compounds associated with the proposed project, and a voluntary design criterion of 3 "odor units" was imposed, as described in Appendix F. The modeling results demonstrated that there are no predicted instances of significant odor impacts which would be considered a nuisance to the surrounding area. As a result, odors emanating from the WKWWRF are not anticipated to significantly increase from existing conditions.

As an additional measure, MANA will develop mitigation plans and Standard Operating Procedures (SOPs) to address reports of unacceptable odor, subject to approval by the County of Maui and the State of Hawaii Department of Health Clean Air Branch. These plans will be implemented prior to the commercial operation of the project.

The application of digestate to the fields has the potential to result in short term odor impacts in the vicinity of the fields. Fields currently planned to be dedicated to production of feedstocks are not immediately adjacent to residential or commercial areas. Additionally, digestate will be incorporated into the soil at the time of application or shortly thereafter to minimize potential odor concerns.

2.2 Socio-Economic Characteristics

2.2.1 Population

Existing Setting

Maui County has experienced tremendous population growth over the years as evidenced by United States Census data. The island of Maui's growth has also been robust. See **Table 2.** The island's growth is largely attributable to a desire from U.S. mainland residents transplanting to Maui as Maui is regarded as the number one Hawaiian island by many travel publications.

Table 2. Population Statistics

	Population			Percent Change	
	1990	2000	2010	'90 to '00	'00 to '10
State of Hawaii	1,108,229	1,211,537	1,360,301	9.3	12.3
Maui County	100,504	128,241	154,924	27.6	20.8
Wailuku	45,685	61,346	78,110	34.3	27.3

Source: Maui County Data Book 2016

In addition, the Wailuku area of the island (includes Kahului in the U.S. Census Data), which is one of the major centers of the local population, has also experienced sizable population increase over the years. The growth rate for the Central Maui region has been significantly higher than the rest of the county and the state as a whole. It is anticipated that the local population will continue to grow in that area in the foreseeable future as housing developments continue to be completed.

Likewise, Maui County's de facto population has experienced considerable growth. The de facto population includes both the number of permanent residents and visitors (tourists) on the island. See **Table 3**.

Table 3. Maui County Defacto Population

	De facto Population			
	2000	2005	2010	2015
State of Hawaii	1,336,005	1,412,500	1,468,712	1,583,148
Maui County	168,650	184,987	194,380	215,439

Source: Maui County Data Book 2016

Potential Impacts and Mitigation Measures

The proposed project will not impact the local or tourist populations as the project will not affect wastewater capacity or accommodations on the island. In the short-term, the project will require approximately 30-40 construction workers during the various stages of work, however, it is anticipated that these workers would already reside on Maui. Moreover, in the long-term, the two permanent workers will likely be individuals already residing on the island.

2.2.2 Housing

Existing Setting

Housing on Maui is an ongoing problem for local families. Exacerbated by the continued influx of new residents from the U.S. Mainland, long-term housing is in constant short supply. It is not uncommon for two or more generations of local families to reside in the same dwelling due to the high cost of housing on the island. According to the Maui County Data Book 2016, there has been a slow increase in new housing units and housing prices have been increasing steadily. See **Table 4**.

Table 4. Maui County Housing Statistics

	2012	2013	2014	2015
Number of Housing Units – Maui County	70,763	71,147	71,469	71,712
Median Price of Owner-Occupied Units	$478,900	$471,800	$534,100	$569,300

Source: Maui County Data Book 2016

Potential Impacts and Mitigation Measures

The proposed project is not anticipated to have any impact on the housing supply or market on Maui. While the project will improve wastewater sludge disposal on the island, the project will not increase wastewater capacity. Moreover, the renewable energy generated will primarily be for the WKWWRF use.

2.2.3 Economy

Existing Setting

According to the State of Hawaii, Department of Business, Economic Development & Tourism, economic conditions in Maui County are healthy. Total visitor arrivals by air (5.3% increase) and visitor expenditures (6.7% increase) rose and there was a net gain of 1,900 jobs as compared to the same quarter the previous year. DBEDT also forecasts that economic conditions throughout the state will remain strong through the balance of 2017 and are anticipated to continue to expand in 2018.

Potential Impacts and Mitigation Measures

The proposed project will support future economic growth for the region. The County of Maui in its operations of the WKWWRF will realize savings as compared to its existing electricity rates by utilizing the firm, renewable power that the project generates.

In the near term, local material suppliers and retail businesses are expected to benefit through the multiplier effect from the increased construction activities. The ongoing operations of the project in the longer term will contribute to the local economy. In addition, the State of Hawaii and County of Maui will receive tax revenues from construction activities and income taxes from business revenues and wages.

2.2.4 Employment

Existing Setting

Like the other major Hawaiian Islands, agricultural employment has been in decline on Maui, largely due to the recent closures of the pineapple and sugar plantations. Agricultural jobs number an estimated 1,900 jobs within the entire Maui County. The non-agricultural jobs on the island of Maui may fall in three basic categories, goods producing, services providing (largely tourism based), and government. See **Table 5**.

Table 5. Island of Maui Job Composition

Job Description	Number of Jobs
Total Non-Agricultural Jobs	**71,500**
Total Private	**62,400**
Goods Producing	4,900
Services Providing	57,500

Total Government (Federal, State, and Local)	**9,100**

Source: Maui County Data Book 2016

Unemployment on the island of Maui remains low; in July 2017, the unemployment rate for the island was 2.4 percent. This compares to an unemployment rate for the island of 3.1 percent in July 2016.

Potential Impacts and Mitigation Measures

The proposed project will result in the creation of 30-40 jobs to support construction and will create associated short-term benefits. Aside from increasing activity in the construction sector during that time, no further impacts are anticipated on island employment. There will be two permanent jobs created to support operations locally, which will minimally increase the number of jobs on Maui. The wastewater sludge is currently being processed for the County of Maui by a vendor as part of its composting operations. Depending on the local demand for compost that no longer contains wastewater sludge, employment at the County of Maui's current vendor may be impacted, though farming employment related to the energy crop cultivation will increase.

2.3 Infrastructure

2.3.1 Airport

Existing Setting

Kahului Airport is a State Department of Transportation (DOT) facility that is the primary airport on Maui. According to the State DOT, Kahului Airport occupies 1,391 acres of land and is the second busiest airport in the State of Hawaii. Kahului Airport has two intersecting runways and full air carrier facilities to support domestic overseas (U.S. Mainland) and interisland operations. Air travel to and from Kahului Airport includes passengers, cargo, and mail. See **Table 6**.

Table 6. Traffic Composition at Kahului Airport

	2013		2014		2015	
	Outgoing	Incoming	Outgoing	Incoming	Outgoing	Incoming
Passenger						
Interisland	1,412,147	1,421,932	1,413,773	1,418,034	1,436,763	1,445,357
Overseas	1,632,197	1,634,611	1,703,015	1,711,253	1,900,226	1,896,426
Cargo						
Interisland	5,096 tons	13,103 tons	5,097 tons	14,307 tons	6,080 tons	14,432 tons
Overseas	1,213 tons	7,654 tons	1,363 tons	8,529 tons	1,229 tons	9,477 tons
Mail						
Interisland	1,637 tons	4,444 tons	1,820 tons	4,813 tons	1,818 tons	5,545 tons

Overseas	637 tons	3,485 tons	677 tons	3,254 tons	690 tons	3,476 tons

Source: Maui County Data Book 2016

Potential Impacts and Mitigation Measures

It is likely that the bulk of construction materials for the project will arrive via ship; therefore, minimal, if any, impact on Kahului Airport related to shipment of construction materials is anticipated.

Due to the proposed project's proximity to Kahului Airport, design and construction coordination with the State DOT is required. The project will comply with State DOT and Federal Aviation Administration (FAA) rules and regulations, including State DOT Airports Division Technical Assistance Memorandum, HAR, Chapter 19-12, as well as the FAA's "Notice of Proposed Construction or Alteration", FAA form 7460-1 and FAA Advisory Circular 150-5200-33B, "Hazardous Wildlife on or Near Airports".

2.3.2 Harbor

Existing Setting

Kahului Harbor is operated by the State DOT and is the only deep draft commercial harbor on Maui. Most goods utilized by Maui's residents and visitors arrive through the three piers at Kahului Harbor. In addition to cargo received at Kahului Harbor, the harbor is used for container and automobile storage, passenger operations, fuel discharge, and bulk and cement offloading. The major users of Kahului Harbor include Matson, CSX, Pasha, MECO, Hawaiian Cement, and HC&D. See **Table 7**. Kahului Harbor is located within a mile of the WKWWRF.

Table 7. Kahului Harbor Freight Traffic

		Freight Traffic at Kahului Harbor (in thousand short tons)			
	2011	2012	2013	2014	2015
All Commodities	**3,504**	**4,711**	**3,669**	**3,739**	**3,720**
Receipts	2,233	2,762	2,302	2,422	2,361
Shipments	1,272	1,949	1,367	1,317	1,358

Source: Maui County Data Book 2016

Potential Impacts and Mitigation Measures

During construction, building materials will be sourced locally and from off-island. Most of these materials will originate off-island and these materials will be brought to the island via Kahului Harbor. The building materials will be similar to building materials already being brought to port and are not anticipated to affect any greater impact on the harbor.

During operation, the feedstock for the facility – wastewater sludge and biomass from crops – will be sourced locally. As a result, impacts to Kahului Harbor will be minimal.

2.3.3 Roadways and Traffic

Existing Setting

The subject property is located in an area of Kahului that does not attract heavy peak hour traffic due to the area's primarily recreational and public uses. In addition to Amala Place where the subject property is located, Hobron Avenue, Hana Highway, and Kaahumanu Avenue are the other public roadways in the immediate vicinity. See **Figure 17**.

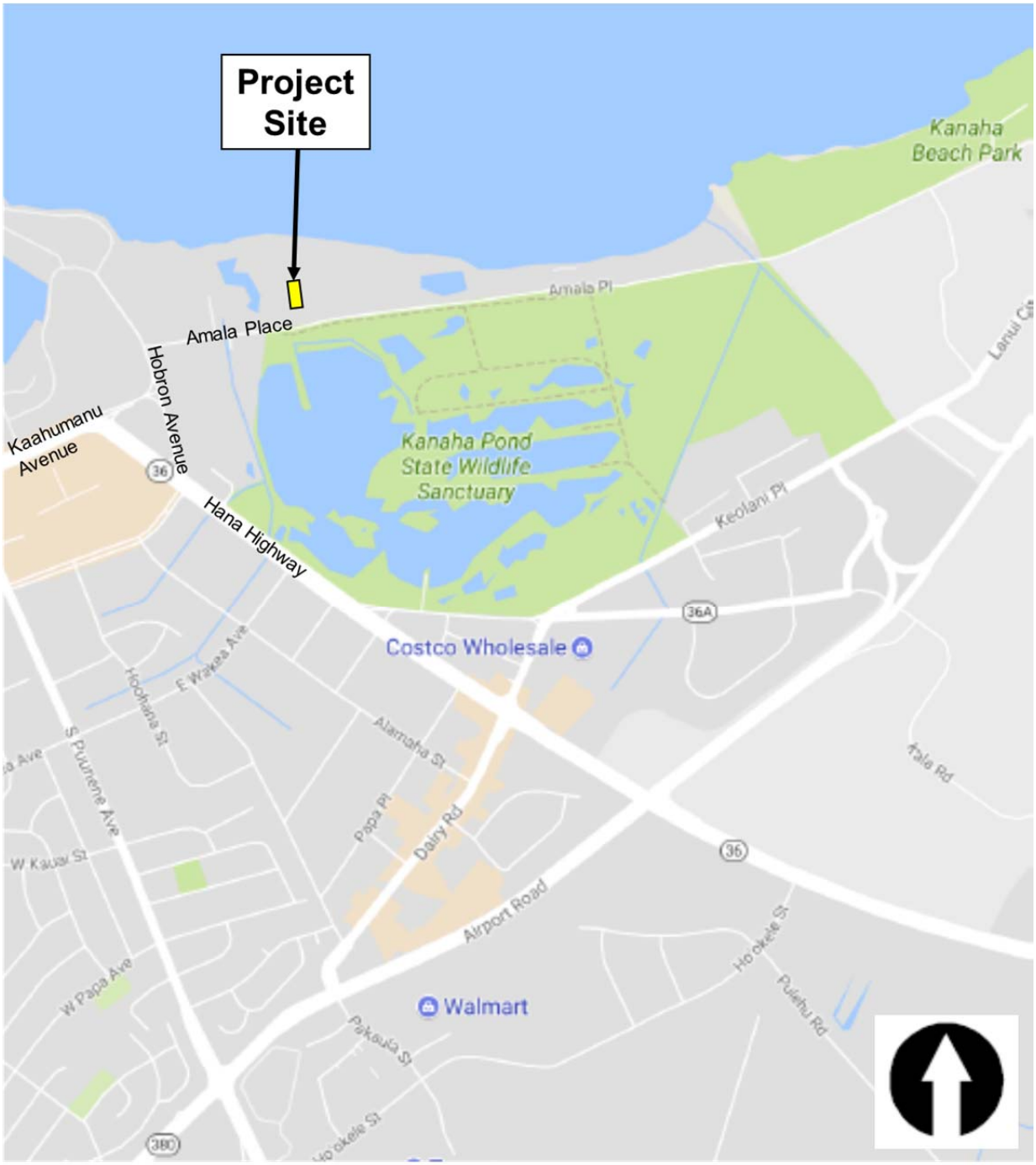
Amala Place – this roadway is a County of Maui local roadway that has two lanes and is undivided. One end of the roadway terminates at Hobron Avenue and the other end terminates at Kanaha Beach Park. Located along this roadway are various light industrial and recreational uses, such as Cash and Carry, Aloha Recycling, the WKWWRF, and Kanaha Beach Park.

Hobron Avenue – this roadway is a two-lane undivided local roadway that connects a portion of the Kahului Harbor area with Hana Highway. Located along Hobron Avenue are various heavy- and light-industrial uses, including Maui Oil, Kahului Trucking and Storage, and Valley Isle Produce.

Hana Highway – this roadway is a four-lane divided highway maintained by the State DOT, which connects Kahului with the Upcountry and East Maui areas of the island. Near the project site, Hana Highway turns into Kaahumanu Avenue.

Kaahumanu Avenue – this major arterial roadway is a four-lane, State of Hawaii maintained, divided roadway that transitions from Hana Highway at one end and terminates in Wailuku town. This roadway serves as the primary roadway connecting Kahului and Wailuku.

Wastewater sludge is currently generated and transported from the three municipal wastewater treatment facilities (including the WKWWRF) to the Central Maui Landfill via island roadways. The County's sludge trucks normally make one trip per day, seven days per week. The sludge trucks are typically on the road during the day, outside of the morning and afternoon peak hours of traffic.



Source: Google Maps

Figure 17 Local Roadways Map

Potential Impacts and Mitigation Measures

There will be short-term roadway impacts during construction activities as roughly 25 construction workers during various phases of construction will access the WKWWRF. During operation, there will be two workers during the morning and afternoon peak hours of traffic going to and from the WKWWRF. During the day, the sludge trucks will arrive from the other two municipal wastewater treatment facilities to deliver sludge. The project will result in a net decrease in municipal truck traffic carrying sludge, as no sludge will be hauled from the WKWWRF to the Central Maui Landfill~~landfill~~. Trucks transporting energy crops and digestate to and from Central Maui Feedstocks will travel between the Central Maui agricultural lands and the WKWWRF. Energy crop truck traffic will occur once per day during non-peak hours. Given the limited schedule of transportation, no significant impacts to the area roadways are anticipated.

2.3.4 Public Transit

Existing Setting

The County of Maui, Department of Transportation operates the public bus transit system for the island of Maui, which is called the Maui Bus. All public bus routes operate seven days per week, including holidays. There are currently 13 public bus routes on Maui, with two loop routes, Kahului Loop Routes #5 and #6, which serve the Kahului area as transit circulators. The closest stop to the project site for the Maui Bus is the Maui Mall bus stop, which is located roughly a half a mile from the project site.

Potential Impacts and Mitigation Measures

During construction, it is not likely that workers will utilize the Maui Bus for transportation to the job site due to ample space available at the WKWWRF to serve as construction worker parking. During operation of the facility, there will only be two workers at the facility and ample parking will be available onsite to accommodate personal vehicles for transportation. Further, the facility will not attract members of the general public as it will be a secured area. As a result, it is not likely that Maui Bus resources will be utilized by the project and no impacts to the public transit system are anticipated.

2.3.5 Drainage

Existing Setting

Within the last decade, as part of the construction of a new wastewater storage building that is adjacent to the project site, a drainage basin was constructed to mitigate the drainage effects. Onsite runoff from the proposed project site sheet flows to the low spots where it currently ponds on the project site, until the water evaporates or percolates. It is estimated that the 50-year, 1-hour storm runoff o the proposed project

site in its existing condition is 4.7 cubic feet per second (cfs), which amounts to a volume of 1,741 cubic feet.

Potential Impacts and Mitigation Measures

In accordance with the County of Maui's drainage regulations, the project's drainage system will be required to contain on site any post-development increase in runoff. While the offsite runoff is not anticipated to increase after project implementation, the onsite runoff is anticipated to increase to 6.1 cfs, requiring 2,239 cubic feet of storage to mitigate the 50-year, 1-hour storm event. See **Appendix G**. To accommodate the increase in drainage flows, the plan is to utilize grated catch basins and area drains to convey runoff to the detention basin that will be enlarged to sufficient capacity to contain the increase in runoff volume.

Other drainage improvements include piped systems, which may include and are not limited to catch basins, drain inlets, planter drains, and PVC piping and fittings. These proposed drainage improvements will effectively retain storm water runoff onsite and will not impact offsite properties. While permeable pavements and vegetative strips were considered during the early stages of the project, it was determined that the soil percolation rate would not allow the drainage system to operate effectively. Nonetheless, the proposed drainage system will be designed in accordance with Chapter 4 of the~~,~~ "Rules for the Design of Storm Drainage Facilities in the County of Maui."

The project will incorporate a list of Best Management Practices, including those found in the agency responses, to minimize sediment and runoff from impacting neighboring properties and nearby coastal resources. Requirements for the temporary control of soil erosion and dust during construction will be outlined and shown on the construction plans during the design development of the project. Some of the requirements will be as follows:

1. Control dust by means of water trucks or by installing temporary sprinkler systems.
2. Graded areas shall be thoroughly watered after construction activity has ceased for the day and for weekends and holidays.
3. All exposed areas shall be graveled, grassed, or permanently landscaped as soon as finished grading is completed.
4. Storm runoff will be diverted away from graded areas to natural drainageways or ground during construction by means of sand bag berms or lined temporary swales.
5. Time of construction will be minimized.
6. Only areas that are needed for new improvements will be cleared.
7. Installation of sediment trapping devices such as silt fence or gravel bag berms at the downstream side of the graded area.
8. Temporary control measures shall be in place and functional prior to construction

and shall remain operational throughout the construction period or until permanent controls are in place.

2.4 Utilities

2.4.1 Electrical System

Existing Setting

The entire island of Maui is served by one electric utility, Maui Electric Company, Ltd. (MECO), a subsidiary of the Hawaiian Electric Company, Inc. (HECO). Electrical generation on the island is a mix of firm and renewable supplies. According to HECO's 2016 Power Supply Improvement Plan, filed in December 2016, MECO's firm power capacity is 251.7 MW (gross). The primary fuels for the MECO firm power units are ultra-low sulfur diesel and low sulfur diesel. MECO's firm power is derived from combined cycle, internal combustion engine, and oil-fired steam units.

MECO also utilizes renewable wind, solar, photovoltaic, and hydropower resources that are integrated into its system. For the island of Maui, Maui Electric's variable renewable generation system has 72 MW of wind, 0.5 MW of hydroelectric, and 92 MW of distributed generation (mostly photovoltaic) (the distributed generation figure includes Lanai and Molokai).

Potential Impacts and Mitigation Measures

The electric loads at the WKWWRF are expected to peak at 640 kW, with an expected minimum requirement of 450 kW; an additional 200 kW will be required to operate the proposed project (the "parasitic load"). Therefore, incorporating a margin of safety, the proposed project can provide up to 1.0 MW of firm, renewable power to satisfy the ~~WKWWRF's~~ overall electrical demand.

The existing wastewater treatment facility would remain connected to the MECO grid, which would supply any required supplemental power. The project would "load follow" onsite electricity needs, providing only the amount of electricity needed at a given time, and therefore would not supply power to the grid. The impact or reduction of demand on the MECO grid would be minimal. The proposed project is not expected to have an adverse effect on the existing MECO grid. Firm generation from the MECO Maalaea and Kahului generation facilities provide up to 249.7 MW of energy for most of the Maui grid. (MECO website Power Fact Page) The proposed project would reduce this load by 0.40%, thus having a very minimal impact on the existing grid.

A meeting was held on January 4, 2017 with MECO and MANA to review the requirements of the Standard Interconnection Agreement (SIA) Utility Rule 14H and the

application process. MECO also informed the applicant that an Interconnection Reliability Study (IRS) will be required. The IRS is currently in the planning stages and will be completed by MANA. Once completed, any potential design and engineering changes recommended by the IRS to accommodate the proposed project will be incorporated in the final project design.

The WKWWRF will remain connected to the MECO grid and will also remain connected to a backup generator for emergency power. The project's combined heat and power engine that will be utilized for electrical generation will be sized to efficiently maximize the biogas resource. As a result, the decrease in electrical demand from MECO will be the primary impact from project implementation.

2.4.2 Water System

Existing Setting

The County of Maui, Department Water Supply (DWS) serves the majority of the island of Maui for its domestic and fire flow water supply. Kahului town is served by the DWS from ~~its~~ the Iao Aquifer. The WKWWRF is currently connected to the DWS system for its domestic water and fire flow needs.

At the WKWWRF, processed wastewater treated to the State DOH's R-2 recycled water quality standard and is available for use at the WKWWRF. ~~by the project. The WKWWRF is currently not able to produce R-1 recycled water, the highest quality of recycled water recognized by the State DOH, since the facility does not have the required disinfection capability to treat effluent to that standard.~~ R-2 recycled water is primarily used for dust control and restricted irrigation use. The proposed project is anticipated to have minimal water use and will not use recycled water.

Water used for irrigation of the energy crops is currently derived from surface water collected off-site and on-site brackish groundwater wells, and this use is anticipated to continue. As noted, water use by energy crops is anticipated to be less than that of sugar cane production. The potential use of recycled water for energy crop production will be evaluated in the future if the County decides to do so. ~~it becomes available and is proven to be viable for use.~~

Potential Impacts and Mitigation Measures

The proposed project is not anticipated to generate a significant need for potable or recycled water. There will be only two operators on-site and accommodations for toilet, handwashing, and kitchen use would account for daily water usage at the facility. There will also be area landscaping and maintenance activities that require water usage. It is anticipated that these uses will be minimal and will not significantly impact the DWS water system currently in use at the WKWWRF. During the permitting stage of the

project, MANA will consult with the DWS and DLNR Engineering Division with its water demands and calculations.

2.4.3 Wastewater System

Existing Setting

The subject property houses the wastewater treatment facility for the community. The WKWWRF currently processes 4.0 million gallons per day (MGD) of wastewater and has a dry weather capacity of 7.9 MGD. Treated effluent generated by the wastewater reclamation process is disposed of via deep onsite injection wells or is ~~re~~used for dust control onsite or at construction sites. The wastewater is treated to the R-2 level, which establishes and limits allowable uses for such water. Current reuse of the recycled water is limited.~~Because of the inability of the WKWWRF to treat the wastewater to an R-1 quality level, current reuse efforts of the treated effluent generated is limited.~~

Potential Impacts and Mitigation Measures

The proposed project is not anticipated to generate a significant need for wastewater disposal. There will be only two operators on-site and accommodations for toilet, handwashing, and kitchen use would account for wastewater discharge at the facility. Limited wastewater will be generated by the sludge dryer's wash water and blower blowdown. The contractor will obtain and comply with a wastewater discharge permit, pursuant to Title 14, Maui County Code, for any discharges to the County's wastewater system.

2.4.4 Solid Waste System

Existing Setting

Municipal solid waste (MSW) in Central Maui is collected by municipal and private waste haulers for disposal at the only landfill in Central Maui, the Central Maui Landfill. The Central Maui Landfill has been in operation for over two decades and will continue to serve as the primary MSW disposal option for the local community. Municipal waste hauling is limited to service for single-family residential properties; private waste hauling services multi-family, commercial, municipal, and industrial properties. The WKWWRF is serviced by a private waste hauler that provides small dumpsters for collection of solid waste.

Potential Impacts and Mitigation Measures

Construction waste will be disposed of in the same manner as MSW due to the absence of a construction and demolition landfill on the island of Maui. Should a construction and demolition landfill open by the time of project construction, construction waste will be diverted to that disposal facility. In addition, feasibility of construction waste that could be recycled or reused will be explored during the construction phase of the

project. In addition, the existing private waste hauling service can accommodate the slight increase in waste levels during project operation in the long-term.

2.4.5 Communications System

Existing Setting

Currently, the WKWWRF is served by two communication services. Hawaiian Telecom provides telephone communication services and Spectrum (formerly Oceanic Time Warner) provides cable television and internet communication services.

Potential Impacts and Mitigation Measures

The proposed project is likely to utilize the existing communication services that are currently available at the property. Aside from possible line extensions within the WKWWRF, no other activities related to communications systems are anticipated. As a result, no significant impacts related to the communications systems are anticipated.

2.4.5 Fire and Explosive Safety Protection System

Existing Setting

The existing facilities at the WKWWRF comply with applicable building, electrical, and fire codes, including the National Fire Protection Association's standard for fire protection in wastewater treatment and collection facilities. The WKWWRF currently has three fire hydrants located throughout the facility; and additional hydrant is located nearby on Amala Place. The Maui County Department of Fire and Public Safety is responsible for multi-mission, emergency response on the island of Maui. The Kahului Fire Station is located at 200 Dairy Road, Kahului, Maui, which is approximately 1.6 miles from the proposed project site at the WKWWRF. In the event of a fire or biogas release, they would be notified by dialing 911. Response time is estimated at 7 minutes. The Wailuku Fire Station and the Kahului Airport Fire Stations are also located with 4 miles, with an estimated response time of 12 minutes.

Potential Impacts and Mitigation Measures

In the absence of appropriate design and planning, the storage and generation of combustible biogas can pose fire and explosive risk. Well-established and effective mitigation measures, developed in accordance with appropriate codes and other requirements, will be utilized to manage the risk. During the detailed project design phase, which can commence after this FEIS is accepted, a Hawaii-licensed fire protection engineer will design appropriate fire suppression systems and prepare relevant safety, prevention, and response plans. Design of the structures, equipment, facilities, and warning and fire protection systems will incorporate relevant codes and standards from the National Fire Protection Association (NFPA), including NFPA 1, Fire Code; American National Standards Institute (ANSI); and the National Electrical Code

(NEC). The facility design will meet all applicable requirements of the County Fire Code, Chapter 16.04C, and the State Fire Code, HAR Chapter 12-45.3. All equipment, warning, and fire suppression systems will be designed to comply with all appropriate fire protection standards and regulations to provide a reasonable level of protection against loss of life and property from the risk of explosion and fires. These systems may include central remote control fire suppression monitors, water-foam generators, and large dry chemical wheeled extinguishers. The precise details of these features will be determined during the design phase, coordinated with existing WKWWRF controls and procedures, and will be subject to County approval.

2.5 Public Services and Facilities

2.5.1 Schools

Existing Setting

There are several public schools located in the Wailuku and Kahului areas of Maui, though none are located within one mile of the project area. Moreover, the project site is located on a limited access road terminating at Kanaha Beach Park with no residential dwellings past the project site on Amala Place.

To keep pace with the growing population of Maui, Pomaikai Elementary School and Puu Kukui Elementary School opened within the last decade. The following table lists the public elementary, intermediate, and high schools in the Wailuku and Kahului areas along with the stated 2016-2017 school year enrollment. See **Table 8**.

Table 8. Public Schools Serving the Wailuku and Kahului Areas

School	Grades Served	2016-2017 Enrollment
Kahului Elementary School	K-5	949
Lihikai Elementary School	K-5	872
Pomaikai Elementary School	K-5	580
Puu Kukui Elementary School	K-5	738
Iao Intermediate School	6-8	904
Maui Waena Intermediate School	6-8	1,183
Baldwin High School	9-12	1,361
Maui High School	9-12	1,941

Source: State of Hawaii Department of Education, 2016

Potential Impacts and Mitigation Measures

The proposed project does not include a residential component; therefore, no impact to public school enrollment is anticipated due to project implementation. Moreover, area public schools are located over a mile away from the project site and, as such, the project is not anticipated to have impacts to public schools either during construction or during the operation of the proposed facility.

2.5.2 Police, Fire, and Medical Facilities

Existing Setting

The Maui Police Department services the project area from its Wailuku headquarters on Mahalani Street in Wailuku, which is located approximately three miles from the WKWWRF. The Maui Fire Department services the project area from its Kahului Station on Dairy Road in Kahului, which is located approximately two miles from the WKWWRF. Maui Memorial Medical Center, the only acute care facility on Maui, is located in Wailuku near the Maui Police Department headquarters.

Potential Impacts and Mitigation Measures

The WKWWRF is currently in the service area of existing police, fire, and medical services. The proposed project is not anticipated to impact the ability of these emergency entities to provide service to the WKWWRF. The proposed project will employ best engineering practices and design to mitigate impacts from operations of the facility. County Building Codes and State Permitting requirements will be incorporated in the design.

2.5.3 Recreational Park Facilities

Existing Setting

Adjacent to the WKWWRF is the approximately 40 acres of Kanaha Beach Park, which is the primary recreational facility in the vicinity, stretching from Kahului Bay to Spreckelsville Beach. According to the County of Maui, Department of Parks and Recreation, which maintains the park, Kanaha Beach Park has numerous picnic areas, almost 200 parking spaces, outdoor showers, and two public restroom pavilions. With the frequently gusty trade winds, Kanaha Beach Park supports a myriad of activities including windsurfing, kite surfing, camping, canoeing, and picnicking. The beach park is heavily used by residents and visitors alike year-round for recreational activities.

Potential Impacts and Mitigation Measures

The proposed project will be located wholly within the WKWWRF property, which for safety and security reasons, is fenced along its perimeter. The facility itself is not currently open to the public for beach access or public use. Consequently, upon project implementation, no access or use of Kanaha Beach Park will be restricted and there will be minimal impacts, if any, to the recreational use of the beach park.

Chapter 3: Relationship of the Proposed Action to Land Use Plans, Policies, and Controls for the Affected Area

In the State of Hawaii, there are a variety of state and county land use plans, policies, and controls that govern land use activities. These land use plans, policies, and controls are intended to provide governing standards and appropriate guidelines for sound community and island development. Consonance with each plan will provide the optimum opportunity to safely accommodate future growth and development, while minimizing potential impacts to the existing communities and to natural resources in the vicinity.

3.1 Hawaii State Plan

HRS, Chapter 226 details the Hawaii State Plan, which is a guide for future long-range development within the state. In addition to identifying overarching goals, the Hawaii State Plan also sets forth a framework of supporting objectives, policies, and priorities to accomplish these goals. Through the planning process codified by the Hawaii State Plan and by adhering to its goals, objectives, policies, and priorities, implementation of the multi-pronged strategy is intended to increase coordination between public agencies and private entities, provide efficient use of Hawaii's precious resources, and ensure the prudent future development of lands within the state. The proposed project is consistent with applicable sections of the Hawaii State Plan.

The project's conformance to the applicable Hawaii State Plan goals, objectives, policies, and priorities is detailed below.

Section 226-4 State goals. *In order to guarantee for present and future generations, those elements of choice and mobility to ensure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goals of the State to achieve:*

(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawaii's present and future generations.

(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.

Discussion: In initiating this project, the County of Maui sought an opportunity to diversify its energy source with a sustainable, locally generated renewable fuel. The project will inject private investment to the local community for this key infrastructure

element and will help to diversify the economy. The proposed project not only will generate renewable biogas for power generation, but will also sustain a component of the diversified agricultural future through the cultivation of an energy crop as feedstock for the biogas anaerobic digester. This agricultural component will help to ensure that medium scale agriculture remains firmly a part of the Maui landscape.

Section 226-5 Objectives and policies for population.

Objective

A steadily growing and diversified economic base that is not overly dependent on a few industries.

Policies

Promote Hawaii as an attractive market for environmentally and socially sound investment activities that benefit Hawaii's people.

Assure that the basic economic needs of Hawaii's people are maintained in the event of disruptions in overseas transportation.

Strive to achieve a level of construction activity responsive to, and consistent with, state growth objectives.

Foster greater cooperation and coordination between the public and private sectors in developing Hawaii's employment and economic growth opportunities.

Discussion: The proposed project, borne out of an interest from the County of Maui to foster private investment, will provide short-term construction employment. In the long-term, sustainable, locally sourced biogas from locally sourced feedstock provides an alternative to fossil fuel imported feedstock for power generation.

Section 226-7 Objective and policies for the economy – agriculture.

Objective

Continued growth and development of diversified agriculture throughout the State.

Policies

Support research and development activities that provide greater efficiency and economic productivity in agriculture.

Enhance agricultural growth by providing public incentives and encouraging private initiatives.

Expand Hawaii's agricultural base by promoting growth and development of flowers, tropical fruits and plants, livestock, feed grains, forestry, food crops, aquaculture, and other potential enterprises.

Discussion: With the demise of the HC&S sugarcane plantation, the project developers sought an opportunity to engage HC&S to provide biomass feedstock as part of their diversified agriculture portfolio. Through careful experimentation of a diversity of potential crops, HC&S and MANA settled upon crops that can be cultivated effectively on Maui and that can be digested efficiently for biogas generation. The resulting processed digestate will further promote agriculture as a nutrient-rich soil amendment to replenish agricultural lands on the island. The Class A fertilizer produced through the sludge drying process is anticipated to create a positive impact, both in terms of cost savings for County use at its facilities, as well as providing an on-island source of fertilizer.

Section 226-10 Objective and policies for the economy – potential growth activities.

Objective

Facilitate investment and employment in economic activities that have the potential for growth such as diversified agriculture, aquaculture, apparel and textile manufacturing, film and television production, and energy and marine-related industries.

Policies

Accelerate research and development of new energy-related industries based on wind, solar, ocean, and underground resources and solid waste.

Promote Hawaii's geographic, environmental, social, and technological advantages to attract new economic activities into the State.

Discussion: Intermittent renewable resources, such as wind and solar, are pervasive in the island landscape. The County of Maui has a desire to create a new renewable energy source that could divert organic materials that may otherwise need to be landfilled and to provide a firm source of power to help satisfy its facility needs. With the amount of agricultural land that is available in Hawaii and the cessation of farming sugarcane, the potential for proliferation of anaerobic digestion projects can create a new energy industry and can realize organic waste diversion to prolong the life of the landfill.

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

Objective

Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes.

Policies

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

Promote research to develop more efficient and economical treatment and disposals of solid and liquid wastes.

Discussion: The WKWWRF currently has an average dry weather flow of 4.0 MGD, which is significantly below the plant capacity of 7.9 MGD. Wastewater treatment at this facility satisfies basic public health and safety standards. In addition, the Central Maui Landfill sufficiently handles municipal solid waste generated on the island.

The proposed project is intended to enhance the liquid and solid waste disposal processes by more sustainably recycling and converting wastewater sludge and crop biomass into fertilizer and a renewable gas, respectively, and to offset existing diesel based electricity generation. The proposed biological process utilizes a conservation ethic by operating in a largely closed environment, thereby minimizing the release on greenhouse gases to the atmosphere.

Section 226-18 Objective and policies for facility systems – energy/ telecommunications.

Objective

Increased energy self-sufficiency.

Policies

Support research and development as well as promote the use of renewable energy sources.

Ensure a sufficient supply of energy to enable power systems to support the demands for growth.

Ensure that the development or expansion of power systems and sources adequately consider environmental, public health, and safety concerns, and resource limitations.

Discussion: For many decades, there has been a heavy reliance on diesel as the primary fuel for power to the WKWWRF from MECO. There has been considerable effort to lessen the dependence of the community on this fossil fuel. The primary intent of the proposed project is to create greater energy self-sufficiency through island-generated sustainable feedstocks. Additionally, siting the energy production alongside

the use at the WKWWRF, contributes to energy reliability, in that the facility may be insulated from MECO grid outages.

Scalability of the anaerobic digestion technology permits system growth from the initial project scope to ensure a sufficient supply of firm, renewable power in consideration of environmental and community resources. Further development subsequent to implementation of the proposed project is anticipated to grow island-based, firm, renewable energy resources utilizing biomass. This project is considered the first step in the biogas transformation in the renewable energy landscape.

Overall Priority Guidelines

Seek a variety of means to increase the availability of investment capital for new and expanding enterprises.

Provide public incentives and encourage private initiative to develop and attract industries which promise long-term growth potentials, and which have the following characteristics:

(A) An industry that can take advantage of Hawaii's unique location and available physical and human resources.

(B) A clean industry that would have minimal adverse effects on Hawaii's environment.

(C) An industry that is willing to hire and train Hawaii's people to meet the industry's labor needs.

(D) An industry that would provide reasonable income and steady employment.

Encourage the development and expansion of agricultural and aquacultural activities which offer long-term economic growth potential and employment opportunities.

Encourage the development, demonstration, and commercialization of renewable energy sources.

Seek participation from the private sector for the cost of building infrastructure and utilities, and maintaining open spaces.

Discussion: The proposed project keys on several priority guidelines of the State. Realizing the importance of private investment, sustainability, renewable energy, economic diversity, agriculture, and island employment, MANA will infuse millions of dollars into the project, which includes all of the previously mentioned attributes. The project has been designed to realize these beneficial attributes without sacrificing natural resources or the local environment. The project will serve as a proven, scalable

technological implementation, which is likely to promote further biofuel project development on Maui.

3.2 State Land Use, Chapter 205, Hawaii Revised Statutes

Chapter 205, HRS, establishes the State Land Use Commission, a public body tasked with designating all lands in the State into one of four districts: Urban, Rural, Agricultural, and Conservation. Each of these four districts is defined as follows:

(A) Urban – those lands that are now in urban use and a sufficient reserve area for foreseeable urban growth shall be included
(B) Rural – areas of land composed primarily of small farms mixed with very low density residential lots
(C) Agricultural – the boundaries of agricultural districts shall be given to those lands with a high capacity for intensive cultivation
(D) Conservation – areas necessary for protecting watersheds and water sources and for preserving scenic and historic areas, and open space areas.

The subject property is located in the Conservation district according to the State Land Use Commission. See **Figure 18**. More specifically, the property is located within the "Limited" subzone of the Conservation district. There are a variety of permitted uses within the "Limited" subzone with Conservation District Use Permit (CDUP) approval, including "energy generation from renewable sources." Consequently, the proposed project is considered a permitted use within the "Limited" subzone.

In evaluating whether or not a proposed land use is appropriate in the Conservation district, the Board of Land and Natural Resources will evaluate the project with respect to the following eight criteria from Chapter 13, HAR.

1. The proposed land use is consistent with the purpose of the Conservation District.

   The Conservation District was established "for the purpose of conserving, protecting, and preserving the important natural and cultural resources of the State." The proposed project will serve to preserve medium scale, active agriculture on Maui. Lands that would otherwise remain fallow after the closure of HC&S will be actively cultivated as part of this project. Digestate from the anaerobic digester will be land applied as a soil amendment to rehabilitate and enrich these cultivated lands. Further, onsite renewable energy generation may preserve other important natural resources in the state that might otherwise be used for energy infrastructure.

2. The proposed land use is consistent with the objectives of the subzone of the land on which the use will occur.

The objective of the “Limited” subzone is “to limit uses where natural conditions suggest constraints on human activities.” To this end, a permissible use within the “Limited” subzone includes public purpose use, which is further defined as including “energy generation from renewable sources.” The primary thrust of the proposed project is to sustainably generate renewable energy from crop silage. Therefore, the proposed project is consistent with the objective and permissible use of the “Limited” subzone.

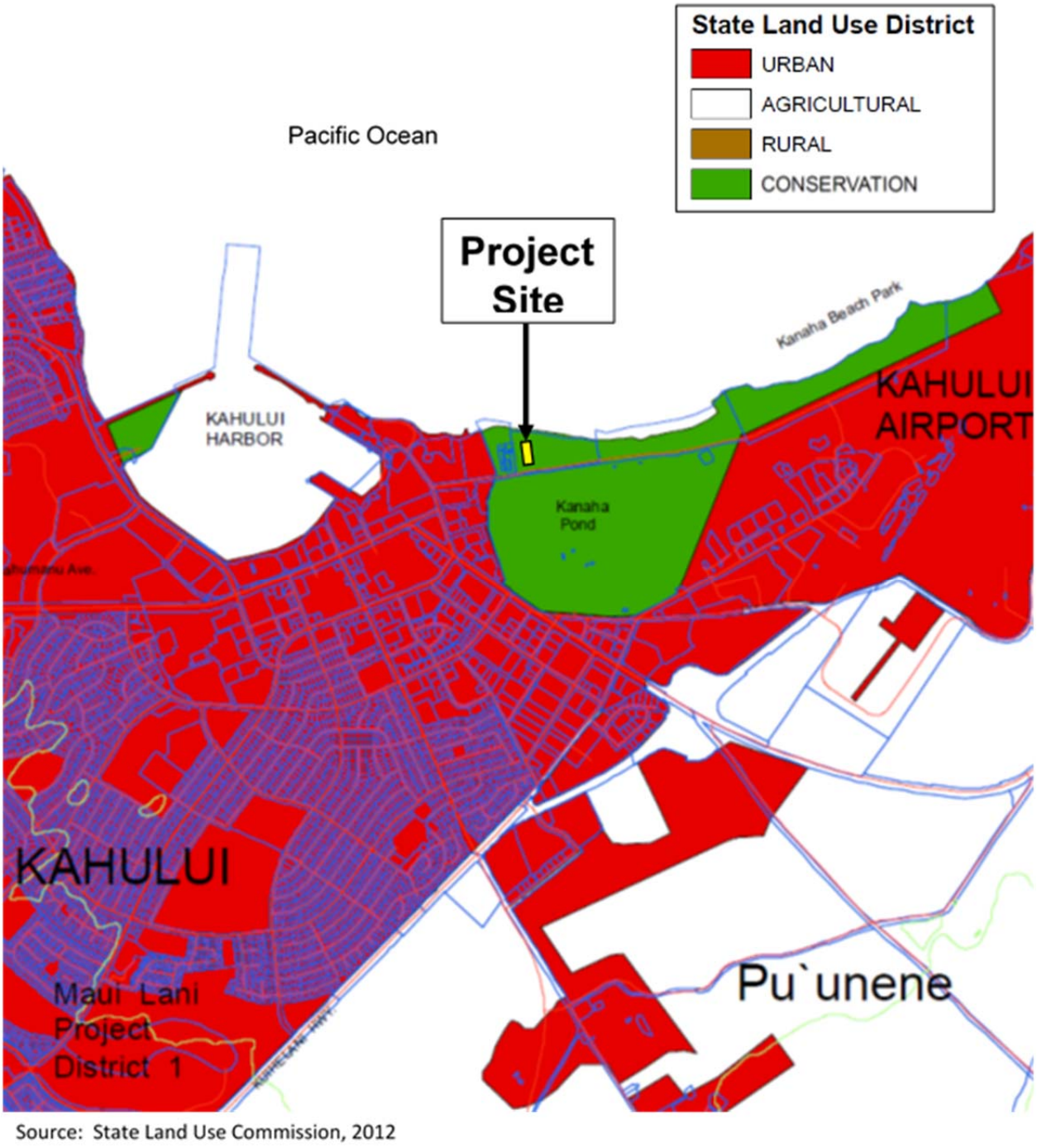


Figure 18 State Land Use Map

3. The proposed land use complies with provisions and guidelines contained in Chapter 205A, HRS, entitled "Coastal Zone Management", where applicable.

   The proposed project complies with Chapter 205A, HRS; a discussion on the applicability and satisfaction of the Coastal Zone Management (CZM) program is included herein. In addition, an SMA Use Permit will be obtained prior to construction.

4. The proposed land use will be compliant with Chapter 205 related to the allowed use of land, including land designated as Important Agricultural Land, and will not cause substantial adverse impacts to existing natural resources within the surrounding area, community, or region.

   Anticipated adverse impacts have been fully analyzed in the EIS document and will continue to be examined throughout the permitting process. Mitigation measures have been proposed to appropriately address and reduce impacts to existing natural resources in the environment. The proposed project will produce renewable energy from biomass harvested on HC&S lands which were formerly cultivated in sugar. The cultivation of biomass will continue to preserve the lands in agriculture, thereby also preserving an existing agricultural resource. Through proposed actions and mitigation measures documented in this EIS, the proposed land use will not cause substantial adverse impacts to existing natural resources.

5. The proposed land use, including buildings, structures, and facilities, shall be compatible with the locality and surrounding areas, appropriate to physical conditions and capabilities of the specific parcel or parcels.

   The proposed project will comprise of structures to implement the sludge processing and renewable energy generation. These structures will be designed to complement the existing structures at the WKWWRF, including the adjacent headworks building, collections building, and wastewater clarifiers in the nearby vicinity. ~~The 59 foot stall stack structure for the flare~~ The 70 foot high digester tank will be the tallest structure proposed and the height of the stack is still below MECO's Kahului Power Plant and Kahului Harbor infrastructure located within the locality. Consequently, the proposed project will assimilate well and is compatible with surrounding facilities.

6. The existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon, whichever is applicable.

   The land is already utilized for wastewater treatment purposes and portions of the site, including the proposed project location, do not serve as an open space resource or natural beauty. From Amala Place~~Road~~, views adjacent to

the project site toward the ocean are currently obstructed by existing wastewater structures and ironwood trees. As part of project implementation, frontage landscaping will be employed to improve upon the public view of the facility and the general locality.

7. Subdivision of land will not be utilized to increase the intensity of land uses in the conservation district.

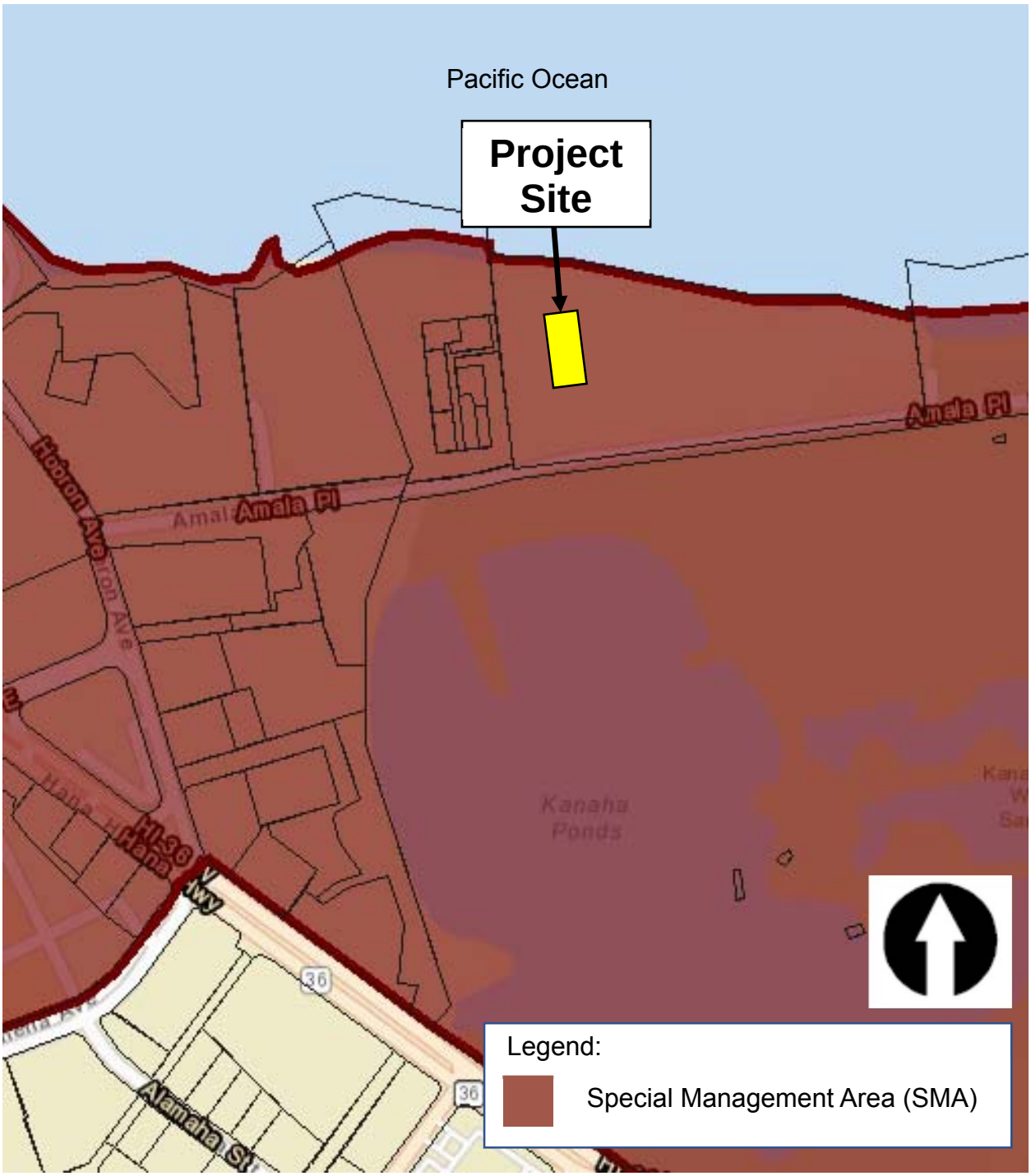
   The County of Maui will not subdivide the project lands. As discussed, the proposed project will be wholly located within the existing WKWWRF property and is consistent with the existing municipal land use. The purpose of this project is to enhance the use of the resulting wastewater sludge from the treatment process and to generate renewable energy.

8. The proposed land use will not be materially detrimental to public health, safety, and welfare.

   The proposed land use is expected to not be detrimental, but instead is expected to enhance public health safety, and welfare. The capture of methane (a greenhouse gas with an elevated global warming potential) in the anaerobic digestion process will prevent release to the environment in a safe manner. The generation of renewable energy will enhance the welfare of the community, since the feedstock fuel to generate the renewable energy is found on Maui. Anaerobic digestion is a technology that has proven safe and is effective and efficient in the production of renewable gas.

3.3 Coastal Zone Management, Chapter 205A, Hawaii Revised Statutes

Chapter 205A, HRS details the State of Hawaii Coastal Zone Management (CZM) Program and the related Special Management Area (SMA) Rules and Regulations guide development within the coastal zone and SMA. These laws and regulations are designed to assist the State and Counties in better managing coastal and estuarine environments. The subject property is located within the County of Maui designated SMA and, as such, CZM and SMA regulations will apply. See **Figure 19**. As part of the permitting process, the applicant will submit an SMA application for approval.



Source: State of Hawaii, Office of Planning

Figure 19 Special Management Area Map

The CZM program outlines management objectives focused around ten areas: 1) Recreational Resources; 2) Historic Resources; 3) Scenic and Open Space Resources; 4) Coastal Ecosystems; 5) Economic Uses; 6) Coastal Hazards; 7) Managing Development; 8) Public Participation in Coastal Management; 9) Beach Protection; and 10) Marine Resources. Conformance of the proposed project to these aforementioned CZM management objectives is explained below.

(1) Recreational resources

Objective*: Provide coastal recreational opportunities accessible to the public.*

Policies:

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

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

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

(ii) Requiring replacement of coastal resources having significant recreational value including, but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

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

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

(v) Ensuring public recreational uses of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

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

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

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, and county authorities; and crediting such dedication against the requirements of section 46-6;

Discussion: The subject property is currently inaccessible to the public for safety and security reasons. The WKWWRF is a State DOH regulated facility that is manned by County of Maui wastewater staff. By locating the proposed project within the WKWWRF

footprint, the County of Maui is preserving existing public access to both the public beach and Kanaha Beach Park.

(2) Historic resources

Objective: *Protect, preserve and, where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.*

Policies:

(A) Identify and analyze significant archaeological resources;
(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and
(C) Support State goals for protection, restoration, interpretation, and display of historic resources.

Discussion: An Archaeological Inventory Survey, a study to identify possible historic properties on the subject property, was prepared for the 2012 WKWWRF revetment project. As previously discussed, no historic properties of any significance were found during the AIS. The AIS was submitted to the SHPD for concurrence with the results of the AIS. In addition, archaeological monitoring by a qualified professional will be conducted during ground excavation activities to ensure adequate oversight should the discovery of previously unknown historic properties arise.

(3) Scenic and open space resources

Objective: *Protect, preserve and, where desirable, restore or improve the quality of coastal scenic and open space resources.*

Policies:

(A) Identify valued scenic resources in the coastal zone management area;
(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and
(D) Encourage those developments which are not coastal dependent to locate in inland areas.

Discussion: The proposed project will not affect natural resources with significant scenic or open space value. The project site is not considered a valued scenic resource as it is located within the confines of the WKWWRF. Site landscaping will be planted to soften the visual impact of the structures to the extent possible.

(4) Coastal ecosystems

Objective: *Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.*

Policies:

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;
(B) Improve the technical basis for natural resource management;
(C) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
(D) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and
(E) Promote water quantity and quality planning and management practices that reflect the tolerance of fresh water and marine ecosystems and maintain and enhance water quality through the development and implementation of point and nonpoint source water pollution control measures.

Discussion: The proposed project will not involve alteration of the shoreline or offshore environments. The project will be constructed and operated in accordance with Federal and State water quality regulations. Post-development drainage is not anticipated to have a significant adverse effect on downstream properties, groundwater, or marine waters. Drainage improvements will be designed to result in little or no increase in the peak rate of storm water runoff from existing conditions. Storm water best management practices will be employed.

(5) Economic uses

Objective: *Provide public or private facilities and improvements important to the State's economy in suitable locations.*

Policies:

(A) Concentrate coastal dependent development in appropriate areas;
(B) Ensure that coastal dependent development such as harbors and ports, and coastal related development such as visitor industry facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and
(C) Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:
(i) Use of presently designated locations is not feasible;
(ii) Adverse environmental effects are minimized; and

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

Discussion: The subject property is already well developed as the WKWWRF. The proposed project will be located within the grounds of the WKWWRF and is being pursued in conjunction with the County of Maui to address several areas, including wastewater sludge disposal, renewable energy development, and diversified agriculture. The siting of the project on the WKWWRF grounds allows for the efficient use of renewable biogas to power the WKWWRF.

(6) Coastal hazards

Objective: *Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.*

Policies:

(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and non-point source pollution hazards;
(C) Ensure that developments comply with requirements of the Federal Flood Insurance
(D) Program; and
(E) Prevent coastal flooding from inland projects.

Discussion: The project will be designed to County of Maui flood zone standards, which require structures to be elevated to minimize impacts of flooding and tsunami inundation. The subject property is located in Flood Zone VE; the project's structures will be fortified to withstand lateral forces that are common in floods.

(7) Managing development

Objective: *Improve the development review process, communication, and public participation in the management of coastal resources and hazards.*

Policies:

(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
(B) Facilitate timely processing of applications for development permits and resolve overlapping or conflicting permit requirements; and
(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Discussion: This EIS document will be the foundation of potential impacts to the coastal zone management area as a result of the project. Short- and long-term impacts

have been identified in a diversity of environmental areas as well as applicable mitigation measures to minimize impacts to the environment. Through the EIS and SMA processes, the public is invited to provide recommendations and ideas to ensure that the project is consistent with applicable land use laws and the local environment.

(8) Public participation

Objective: *Stimulate public awareness, education, and participation in coastal management.*

Policies:

(A) Promote public involvement in coastal zone management processes;
(B) Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal issues, developments, and government activities; and
(C) Organize workshops, policy dialogues, and site- specific mediations to respond to coastal issues and conflicts.

Discussion: There are a number of opportunities for public involvement in this project with respect to coastal zone management. Through the EIS process, the public is welcomed to provide input in areas that they want to see examined and studied further. The project developer has made great attempts to solicit public involvement through individual meetings with key stakeholders and a comprehensive distribution of EIS documents. Coastal zone management awareness of the project will also be addressed in the permitting process as the subject property is located in the County of Maui Special Management Area.

(9) Beach protection

Objective: *Protect beaches for public use and recreation.*

Policies:

(A) Locate new structures inland from the shoreline setback to conserve open space, minimize interference with natural shoreline processes, and minimize loss of improvements due to erosion;
(B) Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and
(C) Minimize the construction of public erosion-protection structures seaward of the shoreline;
(D) Prohibit private property owners from creating a public nuisance by inducing or cultivating the private property owner's vegetation in a beach transit corridor; and

(E) Prohibit private property owners from creating a public nuisance by allowing the private property owner's unmaintained vegetation to interfere or encroach upon a beach transit corridor.

Discussion: The proposed project has been sited so as to be located outside the shoreline setback area to minimize impacts to beach processes. Further, engineering best management practices for erosion control will be implemented to curtail erosion. Public beach access will not be affected by the project as the project is located wholly within the access controlled WKWWRF.

(10) Marine resources

Objective: *Promote the protection, use, and development of marine and coastal resources to assure their sustainability.*

Policies:

(A) Ensure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;
(B) Coordinate the management of marine and coastal resources and activities to improve effectiveness and efficiency;
(C) Assert and articulate the interests of the State as a partner with Federal agencies in the sound management of ocean resources within the United States exclusive economic zone;
(D) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and
(E) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

Discussion: All project activities will be located landward of the shoreline outside of the shoreline setback area. Mitigation measures will be implemented during construction and operation to minimize runoff and fugitive dust to downstream and coastal properties. In accordance with Coastal Zone Management laws, a Special Management Area permit will be secured prior to project implementation.

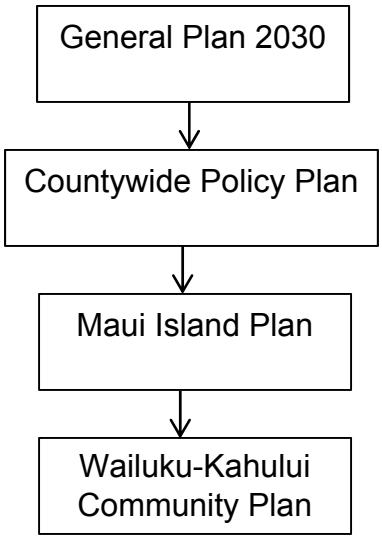
3.4 Maui County General Plan

The Maui County General Plan sets the direction for future growth and policy creation in the County. As taken from the General Plan of the County of Maui 1990 Update:

> *Section 8-8.5 of the Maui County Charter requires that the general plan shall recognize and state the major problems and opportunities concerning the needs and the development of the county and the social,*

economic and environmental effects of such development and shall set forth the desired sequence, patterns and characteristics of future development.

The County of Maui is still in the process of developing General Plan 2030, which is a legislated update of the 1990 General Plan. General Plan 2030 "is a long-term, comprehensive blueprint for the physical, economic, environmental development and cultural identity of the county." General Plan 2030 is comprised of a set of cascading policy plans that include objectives and implementing actions to realize the General Plan 2030 goals.



3.5 Maui County Countywide Policy Plan

The purpose of the Countywide Policy Plan is to provide "broad goals, objectives, policies, and implementing actions that portray the desired direction of the County's future." There are nine core themes of the policy plan to help the County thrive in the face of significant changes that have been, and will continue to occur in the County, including economic, demographic, social, and physical change. The Countywide Policy Plan sets the framework for the development of the Maui Island Plan and the updates of the nine community plans in Maui County. The proposed project addresses a number of these core themes below.

Strengthen the Local Economy

Goal: Maui County's economy will be diverse, sustainable, and supportive of community values.

Objective: Promote an economic climate that will encourage diversification of the County's economic base and a sustainable rate of economic growth.

Policies: Support economic decisions that create long-term benefits.

Promote lifelong education, career development, and technical training for existing and emerging industries.

Invest in infrastructure, facilities, and programs that foster economic diversification.

Support and promote locally produced products and locally owned operations and businesses that benefit local communities and meet local demand.

Objective: Expand economic sectors that increase living-wage job choices and are compatible with community values.

Policies: Support emerging industries, including the following:

Renewable-energy industry;
Research and development industry;
High-technology and knowledge-based industries
Improve physical infrastructure

Objective: Improve waste-disposal practices and systems to be efficient, safe, and as environmentally sound as possible.

Policies: Provide sustainable waste-disposal systems and comprehensive, convenient recycling programs to reduce the flow of waste into landfills.

Support innovative and alternative practices in recycling solid waste and wastewater and disposing of hazardous waste.

Pursue improvements and upgrades to existing wastewater and solid-waste systems consistent with current and future plans and the County's Capital Improvement Program.

Objective: Significantly increase the use of renewable and green technologies to promote energy efficiency and energy self-sufficiency.

Policies: Promote the use of locally renewable energy sources, and reward energy efficiency.

Encourage small-scale energy generation that utilizes wind, sun, water, bio-waste, and other renewable sources of energy.

Expand renewable-energy production.

Develop public-private partnerships to ensure the use of renewable energy and increase energy efficiency.

Reduce Maui County's dependence on fossil fuels and energy imports.

Discussion: The proposed project conforms with the Countywide Policy Plan specifically as it relates to economic, employment, technology, waste management, and renewable energy principles. Several million dollars of private investment into this important piece of infrastructure will be injected into the local economy in the short term during construction and in the long term with high value, technical employment. As previously mentioned, the purpose of the project is to divert organic matter and wastewater sludge from the County's Central Maui Landfill and to generate sustainable, firm, renewable energy, which is consistent with the plan's policy guidelines. This project will benefit the community to further the development of biomass related renewable energy projects with locally procured feedstocks.

3.6 Maui Island Plan

The purpose of the Maui Island Plan (MIP) is to assess the current condition of the island and to identify related trends and issues occurring on the island. The MIP was meant to provide overarching policy direction for the island of Maui and to set the foundation of land development and infrastructure improvement, among many other policy areas impacting the island. The Infrastructure section of the MIP drives policy in key facets, including solid and liquid waste management and renewable energy development. Specific policies in these infrastructure areas, which affect the proposed project are as follows:

- Divert waste from the landfills.
- Encourage environmentally safe waste-to-energy solutions.
- Encourage the use of renewable energy in support of wastewater treatment facilities.
- Evaluate available renewable energy resource sites and applicable technologies.
- Encourage the installation of renewable energy systems, where appropriate.
- Support the establishment of new renewable energy facilities at appropriate locations provided that environmental, view plane, and cultural impacts are addressed.

The MIP also includes the urban growth boundary concept, which is intended to permit urban development in areas with "the efficient provision of public facilities and services inside the boundary." Specifically, areas within the urban growth boundary will be supplied with a full range of public services, including sewer, water, and other infrastructural elements, to support higher densities. An urban growth boundary map is part of the Directed Growth Plan of the MIP.

Discussion: This project, borne out a desire for the County of Maui to leverage private resources to solve community problems that will satisfy many County objectives. Not only will former sugar cane lands be cultivated in diversified agriculture, but the project's underlying technology offers significant opportunity for long-term growth of biomass-based renewable energy. This new industry to the local landscape will promote agricultural and technical employment opportunities in the future. The subject property is located within the County's urban growth boundary. See **Figure 20.**

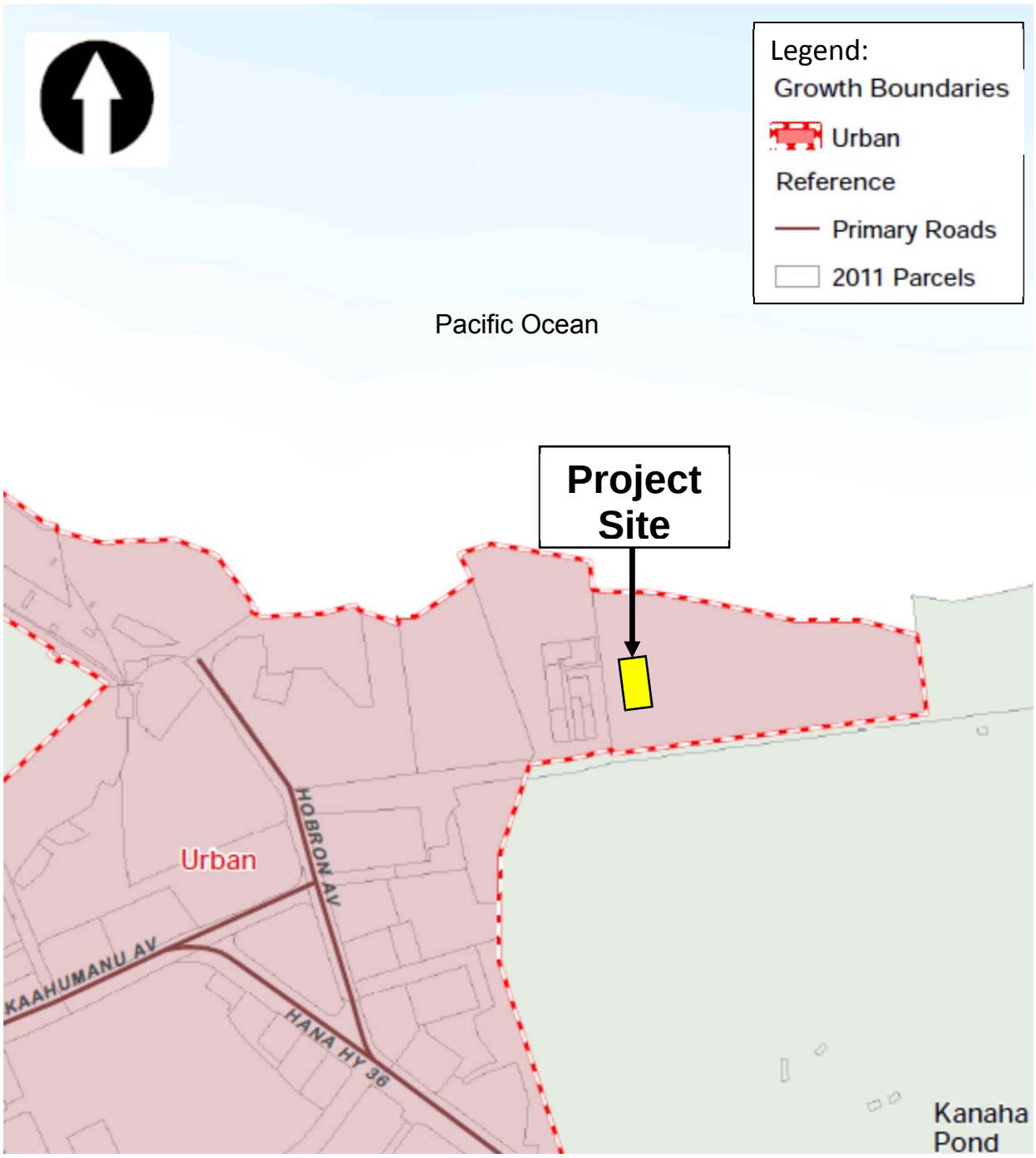
It is anticipated that the success of this project could spur further private investment to scale or enhance processes for long-term prosperity. It is perhaps the continuation of large scale agriculture that is the project's greatest benefit, as the island's green belts and open agricultural spaces help to form the uniqueness of Maui over the other Hawaiian Islands.

3.7 Wailuku-Kahului Community Plan

There are nine community plans in Maui County and the Wailuku-Kahului Community Plan is the applicable community plan for the project. The purpose of the community plans is to provide an assessment of current and anticipated conditions and to provide:

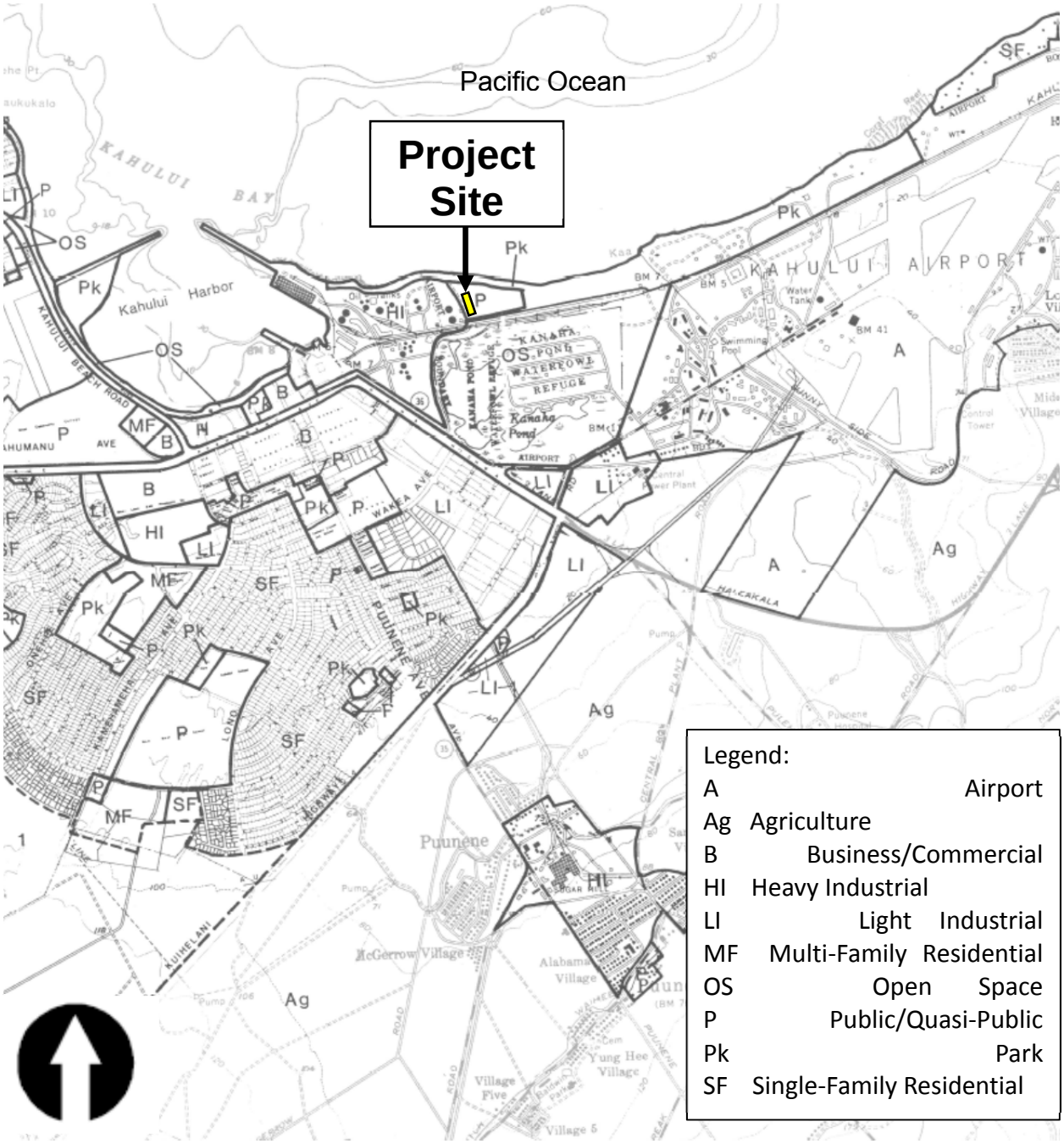
> *…specific recommendations to address the goals, objectives and policies contained in the General Plan, while recognizing the historic values and unique spiritual significance of island cultures of Wailuku-Kahului, in order to enhance the region's overall living environment.*

The subject property is designated Public/Quasi-Public by the Wailuku-Kahului Community Plan map. See **Figure 21**. The proposed use is consistent with the community plan designation for the property, as well as the following goals, objectives, and policies from the community plan.



Source: County of Maui, Department of Planning, 2012

Figure 20 Urban Growth Boundary Map



Source: Wailuku-Kahului Community Plan, 2002

Figure 21 Wailuku-Kahului Community Plan Map

Economic Activity

Goal

A stable and viable economy that provides opportunities for growth and diversification to meet long-term community and regional needs and in a manner that promotes agricultural activity and preserves agricultural lands and open space resources.

Objectives and Policies

Support agricultural production so agriculture can continue to provide employment and contribute to the region's economic well-being.

Discussion: The multi-faceted approach that is inherent in the project not only adds significant economic activity to the local economy, but also helps to diversify the energy industry and promote diversified agriculture for the area. There is also a significant opportunity to grow the biogas market and to retain even more agricultural lands in active cultivation.

Environment

Goal

A clean and attractive physical and natural environment in which man-made developments or alterations to the natural environment relate to sound environmental and ecological practices, and important scenic and open space resources are maintained for public use and enjoyment.

Objectives and Policies

Preserve agricultural lands as a major element of the open space setting that which borders the various communities within the planning region. The close relationship between open space and developed areas is an important characteristic of community form.

Protect nearshore waters by ensuring that discharges from waste disposal meet water quality standards. Continuous monitoring of existing and future waste disposal systems is necessary to ensure their efficient operation.

Protect shoreline wetland resources and flood plain areas as valuable natural systems and open space resources. These natural systems are important for flood control, as habitat area for wildlife, and for various forms of recreation.

Future development actions should emphasize flood prevention and protection of the natural landscape.

Preserve the shoreline sand dune formations throughout the planning region.

These topographic features are a significant element of the natural setting and should be protected from any actions which would detract from their scenic, environmental, and cultural value.

Discussion: The proposed project is located proximate to environmentally sensitive areas. In order to continue to protect the shoreline area, project development will occur outside of the shoreline setback area and storm water runoff will be appropriately addressed to minimize impacts to the coastal region. The project will incorporate a significant amount of agricultural land for feedstock generation, which will preserve those agricultural areas from development during the life of the project.

Government

Goal

Government that demonstrates the highest standards of fairness; responsiveness to the needs of the community; fiscal integrity; effectiveness in planning and implementation of programs and projects; a fair and equitable approach to taxation and regulation; and efficient, results-oriented management.

Objectives and Policies

Ensure that adequate infrastructure is or will be available to accommodate planned development.

Support public and private partnerships to fund the planning and construction of infrastructure.

Discussion: The County of Maui engaged the private sector to propose a cost-effective, sound approach to deal with organic matter on the island and to promote renewable energy for the WKWWRF. The proposed project will accommodate most of the power needs for the WKWWRF in a manner that helps to reduce organic waste and that provides firm power in an area that is otherwise land constrained for typical solar or wind energy applications.

Infrastructure

Goal

Timely and environmentally sound planning, development and maintenance of infrastructure systems which serve to protect and preserve the safety and health of the region's residents, commuters and visitors through the provision of clean water, effective waste disposal and drainage systems, and efficient transportation systems which meet the needs of the community.

Discussion: The project has been designed so as to not interfere with the existing operations of the WKWWRF and will complement the existing processes. Instead of trucking the wastewater sludge generated at the WKWWRF off-site, the sludge will be further processed with sludge from the DEM's two other Maui WRFs ~~WWTFs~~ into fertilizer on-site. This project is directly in line with sound solid waste management principles employed by the County of Maui.

Liquid and Solid Waste

Objectives and Policies

Coordinate sewer system improvement plans with future growth requirements, as defined in the Community Plan.

Reduce the disposal of solid waste in landfills through reducing the amount of material for disposal at the source (i.e. home composting of lawn or tree trimmings), reuse and recycling programs, bioconversion (i.e. composting) and the provision of convenient drop-off facilities.

Discussion: The primary basis for the project is to utilize organic materials (energy crops) as a feedstock for firm, renewable energy and to reduce the volume of wastewater sludge. The process of drying the wastewater sludge will reduce the weight of the wastewater sludge, which will be used by the County for soil enrichment.

Drainage

Objectives and Policies

Establish a storm drain improvement program to alleviate existing problems; implement a continuing maintenance program, and ensure that improvements to the system will meet growth requirements. This addresses safety and property loss concerns as well as the need for comprehensive flood control planning.

Design drainage systems that protect coastal water quality by incorporating best management practices to remove pollutants from runoff. Construct and maintain, as needed, sediment retention basins and other best management practices to remove sediments and other pollutants from runoff.

Construct necessary drainage improvements in flood-prone areas. Where replacement drainage is required for flood protection, these systems shall be designed, constructed, and maintained using structural controls and best management practices to preserve the functions of the natural system that are beneficial to water quality. These functions include infiltration, moderation of flow velocity, reduced erosion, uptake of nutrients and pollutants by plants, filtering, and settlement of sediment particles. The use of landscaped swales and unlined channels shall be urged.

Ensure that storm water runoff and siltation from proposed development will not adversely affect the marine environment and nearshore and offshore water quality. Minimize the increase in discharge of storm water runoff to coastal waters by preserving flood storage capacity in low-lying areas, and encouraging infiltration of runoff.

Discussion: As an integral component of the project design, drainage improvements to appropriately manage the increase in post-development runoff will be implemented to ensure that storm water run-off does not adversely impact the nearby marine environment. In addition, Best Management Practices will be employed to minimize impacts during the construction phase of the project.

Energy

Objectives and Policies

Promote the use of alternative energy sources, such as biomass, wind and solar.

Expand efforts to utilize environmentally and cost effective renewable resources for energy production, such as solar, biomass, and wind energy.

Encourage energy efficient building design and site development practices.

Promote recycling programs to reduce solid waste disposal in landfills.

Promote competition among energy providers to increase options and decrease costs to Maui County residents and government facilities.

Discussion: The proposed project is a unique approach for renewable energy on Maui. With the pervasiveness of solar and wind energy, biomass-derived energy provides another option to support the state's goal of 100 percent renewable energy. As an added benefit, the project will reduce and control sludge handling and disposal costs and will instead produce fertilizer for use on County facilities.

3.8 Maui County Zoning

Land zoning in Maui County is detailed in Maui County Code (MCC), Chapter 19. In MCC Chapter 19, permitted uses and other parameters for each zoning district are codified. There are numerous major zoning designations, including agricultural, residential, business, public/quasi-public, open space, rural, airport, park, and light and heavy industrial. The subject property is located in the County's "Airport" zoning district. However, pursuant to Section 205-5(a), HRS, Conservation districts shall be governed by the State Department of Land and Natural Resources pursuant to Chapter 183C, HRS. Therefore, since the subject property is also located in the "Conservation" state land use district, the "Conservation" district rules apply and largely dictate applicable land uses and building requirements. The project will be constructed in compliance with a Conservation District Use Permit and further in compliance with the Airport Zoning

rules of HAR Chapter 19-12. The zoning for the land expected to be used for growing the energy feedstock crops is Agricultural and is regulated by MCC Chapter 19.030A.

Chapter 4: Cumulative and Secondary Impacts

Secondary impacts are those that result on other areas of the community due to project implementation. One potential secondary impact relates to the existing services which deal with the wastewater sludge. The hauling of the sludge will continue, although the sludge destination will be at the WKWWRF instead of the Central Maui Landfill. As previously discussed, the change in hauling routes and destination is not anticipated to create a hardship on County personnel providing that service, and may be considered to be positive impact as no sludge will be hauled from the WKWWRF. There will not be a net increase in sludge generation.

A second potential secondary impact relates to the proposed project drying the County's biosolids. As noted in Section 1.4, the proposed project would dry the biosolids and return them to Maui County, and the County may use them as fertilizer. This use would only proceed if the dried biosolids are certified as safe, Class A fertilizer, based on all applicable EPA and DOH testing and other requirements. This use would have the beneficial effect of displacing some of the fertilizer the County now uses. Because the dried biosolids have significantly lower moisture contents and higher surfaces area per volume compared to the compost and other fertilizer in current use, and are typically applied to the land in thin layers, the biosolids would be less prone to erosion and much more amenable to aerobic decomposition. As a result, there would be a decreased potential for erosion, such that adverse offsite impacts, if any, are expected to decrease compared to the status quo. Furthermore, using the biosolids as soil amendments would have the overall benefit of promoting decomposition of the biosolids to CO_2 compared to current practices, such that less methane is produced, providing GHG reduction due to the significant difference in the global warming potential of the two gases. Due to these limitations on use and potential effects, and the fact that the biosolids are already used as a fertilizer in existing compost operations, no significant new adverse impacts are anticipated. Positive effects would include GHG reduction reduced use of current fertilizers, and cost savings.

Another potential secondary impact caused by the project is the cultivation of hundreds of acres of land for the biomass feedstock. This secondary impact is considered largely positive, as this agricultural endeavor not only keeps the land in active agriculture that sustains large greenbelts, but it also provides jobs and economic activity for the local community.

The potential proliferation of anaerobic digestion-based renewable energy projects is another secondary impact that may result. With the abundance of fertile agricultural land on the island, there has been no constraint thus far regarding the ability to grow the feedstock. Rather, the limitation to date has been the development and incorporation of the anaerobic digestion technology to the island's energy landscape. Upon successful implementation of this project, additional biomass digestion-based renewable energy projects utilizing Maui's vast agricultural resources may be prompted as a solution to

providing, renewable energy on the island. This would be considered a positive secondary impact.

Cumulative impacts must also be examined in the context of this project's impacts added to other the impacts of foreseeable projects in the area. In review of potential development activity in the project's general vicinity, the primary foreseeable developments mainly involve two State of Hawaii facilities, namely Kahului Harbor and Kahului Airport. Both facilities are experiencing considerable expansion that may increase vehicular traffic in the area in the near future. However, the number of vehicle trips caused by the MANA project is extremely minor relative to the number of trips added by the projects at the two State facilities. As a result, cumulative impacts due to traffic caused by the proposed project are minimal. The same may be said for the project's contribution to cumulative air quality, noise, and odor impacts in the vicinity. The project's contribution to these impacts in the vicinity are minimal and outweighed by the cumulative positive effects on the local community.

Chapter 5: Summary of Unavoidable Environmental Impacts

The proposed ~~MANA~~ project will result in certain specific environmental impacts related primarily to the construction of the project. These impacts are discussed in greater detail in Chapter 2 of this document. Short-term impacts from construction of the project will include temporary noise and air quality impacts. Long-term impacts for the 20-year life of the project will include limited noise, traffic, wildlife, odor, and air quality impacts.

Short-term noise impacts from the construction of project originate from the heavy construction equipment associated with the erection of the two major concrete structures. The anaerobic digester and the elevated covered concrete platform, which will house the sludge drying and power generation equipment, require wooden framing in order to construct the concrete foundations and walls. Pouring of cement within these wooden frame structures will require special concrete pumping trucks and equipment. The noise from these activities—and in general all heavy equipment required for erecting and placement of the equipment, including the infrastructure construction of the project's major components—will be carefully monitored.

Sound attenuation monitors will be affixed to the heavy and mobile equipment. The entire construction site is limited to a small area of the WKWWRF which is illustrated in **Figure 5**. All construction traffic and equipment will enter and exit the construction site via the existing west construction gate and will only operate during daylight hours. Construction will cease if noise levels exceed the thresholds stipulated in noise monitoring plans. Daily monitoring and recording will be supervised by the construction site manager. The anticipated construction period for these activities is four months.

Short-term air quality impact from the construction of project will be limited to the construction site area stipulated above. Best Management Practices (BMPs) including fugitive dust fencing, as approved by the County of Maui, will encircle the entire construction site. Additional measures include fugitive dust mitigation using water spraying in and around the construction site by means of water tanker trucks All traffic entering and exiting the construction site via the existing west construction gate will be monitored by construction site security personnel. Dust control from possible truck traffic leaving the site will be required to have tarps and coverings on all truck removing grading debris. A truck wash area will also be located on-site to limit the carry-out and track-out of construction dirt from the site onto County roadways.

The long-term effects with noise will be limited to the site area and controlled with noise abatement measures including soundproofing of the power generation equipment. The CHP will be design such that it will be completely housed in a soundproof containerized

structure. Ongoing noise attenuation monitoring will be included in the design of the project.

The increase in traffic will be limited to certain routes and schedules explained in ~~Chapter 2~~ Section 2.3.3, above. Delivery of feedstock to provide fuel for the anaerobic digester from the biomass farm will be controlled and limited to daylight hours. All trucks will be enclosed ensuring minimal biomass litter along the designated and approved routes. In the event of accidental spillage, material clean up and restoration will follow BMPs and Standard Operating Procedures (SOPs) that will be developed and implemented prior to the commercial operations of the facility.

Liquid digestate (the organic byproduct of the anaerobic digestion process) shipments from the anaerobic digester back to the biomass farm will be transported in enclosed tanker trucks. The returned liquid digestate will be land applied in accordance with applicable State DOH operating permits or other approvals as applicable. In the event of accidental spillage, material clean up and restoration will follow similar BMPs and SOPs implemented for biomass deliveries. The sludge deliveries to the facility by DEM trucks from the Kihei and Lahaina WRFs ~~WWTFs~~ will follow the present delivery schedule during daylight, non-peak hours. The shipments offsite of the Class A fertilizer will be with DEM trucks and in the event of a traffic accident or mishaps, MANA will work with its consultants and will provide SOPs and BMPs for the DEM to implement.

Wildlife activity increase in and around the site may be unavoidable due to the storage of biomass. Approximately seven days of biomass storage will be required on-site as feedstock for the anaerobic digester to ensure continuity of supply. The facility will include a storage structure to house this feedstock that will be enclosed to minimize the attraction of birds and wildlife to the site. The impact of the biomass feedstock is evaluated in the Biological and Wildlife Survey (See **Appendix C**), and wildlife attracted to this food source has been identified. Control of spillage and containment of the feedstock including daily cleaning and monitoring will be implemented in SOPs and BMPs for the storage of biomass prior to commercial operations.

Long-term impacts on air and odor quality will be managed by controls designed to adhere to the State DOH, Clean Air Branch-issued Non-Covered Source Air Permit. Odor control equipment will be installed on the sludge dryer and will provide monitoring plus control of the associated odors with the processing of wet sludge.

In addition, all air and odor quality equipment will be designed to operate in a failsafe mode. More specifically, depending on the type of failure, control logic for the plant‘s operating systems will systematically shut down the facility in accordance with standard operational procedures.

Chapter 6: Alternatives to the Proposed Action

6.1 Background and Summary:

Strategic Planning Related to Operations of the WKWWRF

As described in ~~Chapter 1: Project Overview, under the heading of~~ Section 1.2, Project Need/Basis, the DEM identified the following strategic planning goals related to the operation of the WKWWRF and handling of sewage sludge from all three treatment facilities located on the island of Maui. These goals formed the basis for the department's Request for Proposals (RFP):

- **Goal 1:** Manage and control the processing disposal of County-generated sludge in a sustainable and economical manner and divert waste from the Central Maui Landfill.

- **Goal 2:** Supply the WKWWRF with firm, renewable electrical energy. DEM identified provision of 5,250 kWh per day as the target range with respect to the WKWWRF normal operations.

- **Goal 3:** Stabilize electrical energy costs through less utility grid dependence, as well as stabilize sludge handling and disposal costs.

- **Goal 4:** Transfer project development and capital costs to the private sector.

Present operations entail transporting roughly 24,000 tons per year of dewatered sludge from the three WWRFs on Maui to a co-composting facility located within the Central Maui Landfill. The dewatered sludge is mixed with green waste at the landfill, and the final product is offered by the current contractor as an EPA certified Class A compost product. The production of this product is predicated on open-air aerobic digestion of dewatered sludge. Historically, inventories of unsold compost product have remained high. Processing is labor intensive, creates wind-blown dust and potential water pollution issues, and requires continuous internal combustion monitoring. Sludge processing fees are presently $103 per ton—an increase of 20 percent over previous years. The consistently escalating costs of sludge processing are a major factor in the County seeking a more viable long term solution, which additionally avoids landfilling of sludge or sludge-compost. Given the cost increases and environmental considerations, DEM has determined that the status quo (no project) alternative is unacceptable.

MECO's Hawaii Public Utilities Commission (PUC)-approved Power Supply Improvement Plan (PSIP) includes the utility's plans to provide electrical energy from additional renewable sources. However, the timeframe for implementation and pricing is to be determined. The County as a whole has systematically developed on-site renewable energy generation at its facilities, largely through solar. Reliance upon the

utility's implementation of renewable electrical power does not meet the County's goals within a reasonable and achievable timeframe.

Wastewater treatment processes utilize significant energy. The County currently does not have cost certainty with utility supplied electrical energy, which contributes to budget uncertainty within DEM. According to MECO, "firm generation" power on Maui is supplied from 100 percent imported oil.[3] Renewable power is available from wind and customer-sited solar generation. However, these forms of renewable electricity are not firm and can only be provided on an "as available" basis. Utility (grid) power from imported oil continues to dominate, and is closely linked to fluctuating import crude oil pricing. Ultra-Low Sulfur Diesel, which is refined from imported crude oil, has historically experienced a wide range in pricing over the past ten years. See **Figures 22 and 23**.

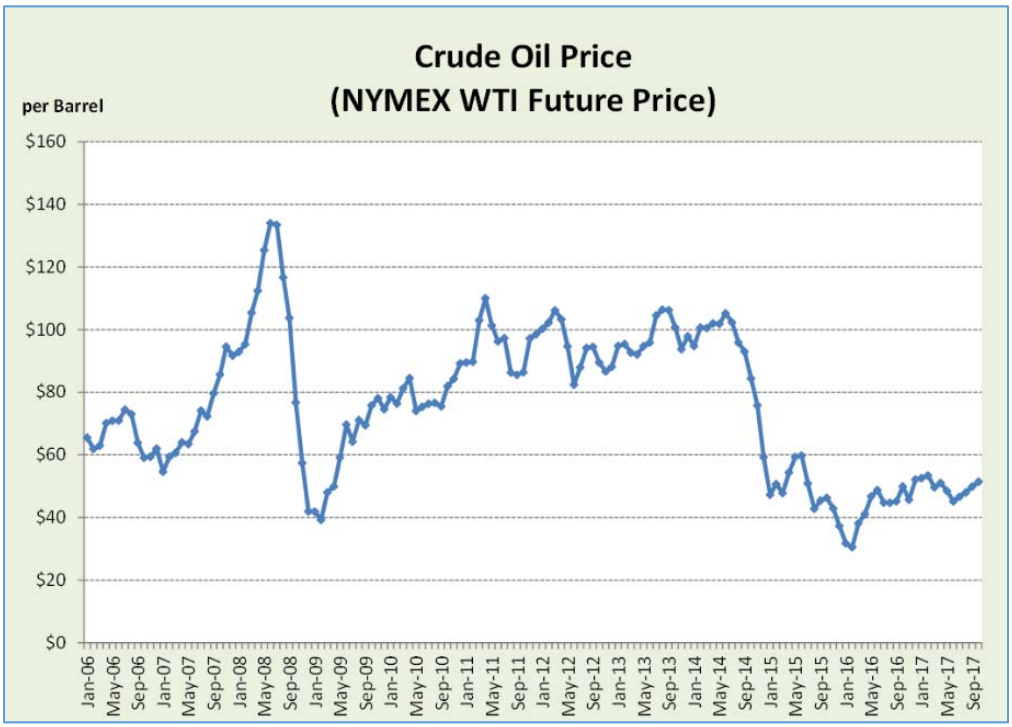


Figure 22 Crude Oil Price[4]

[3] See: https://www.mauielectric.com/about-us/power-facts, Accessed 12/2/2017

[4] Source: State of Hawaii, Department of Business Economic Development and Tourism (DBEDT), Research and Economic Analysis Division.

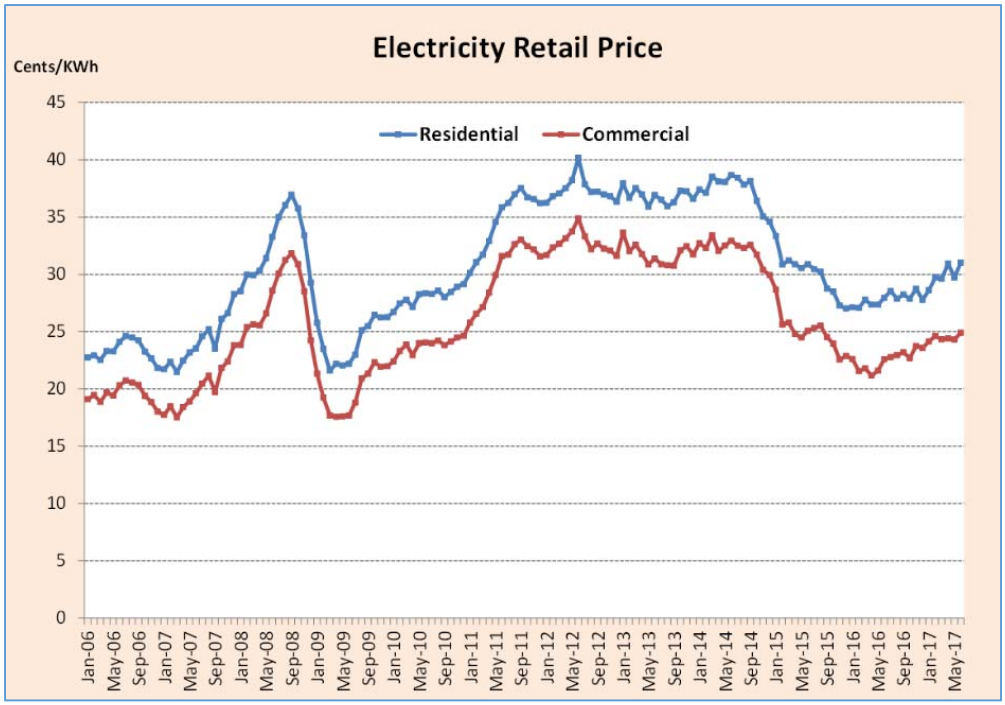


Figure 23 Hawaii Retail Electricity Price[5]

6.2 Summary of Alternatives

In developing a list of feasible alternatives for analysis in this EIS, various potential categories of alternatives were considered, including but not limited to: no action; actions of a significantly different nature with different environmental impacts; alternative designs or details; postponing action postponing action pending further study; and alternative locations for the proposed project. The latter two categories of alternatives were determined not to be feasible for the following reasons, and were not retained for detailed analysis. *Postponing action* would fail to satisfy the County's goals of transitioning to renewable energy and drying its biosolids for cost and resource savings, and is also not warranted because no further study is required. Additionally, postponing action would have the same impacts as no action, which has been analyzed as Alternative 1. *Alternative locations* for the proposed project would not satisfy the purpose and need for the project, as described in Section 1.2, above, and in the RFP. Because the proposed project must both provide electricity to the WKWWRF and utilize the waste heat from electricity generation to dry the WKWWRF biosolids, the facility must be located onsite in order to best meet the County's needs in an environmentally sustainable and cost-efficient manner. In addition, co-location is required because HRS Chapter 269 does not permit the transmission of electrical power by an independent producer to an end-user over the transmission and distribution lines of a public utility (this process is referred to as "wheeling"). MANA also considered *alternative designs* for

[5] Ibid. MECO commercial and residential rates; past 10 years.

the proposed project that involved energy generation without sludge drying, as well as energy generation and drying only the sludge from the WKWWRF, not the sludge from the Lahaina and Kihei WRFs. Both of these alternatives fail to satisfy the County's goals of achieving cost certainty. In addition, the first option would completely fail to utilize the waste heat resource, which would not advance the County's renewable energy goals. Other alternative designs involving different energy sources were retained for evaluation, as described below.

Based on the foregoing considerations, the following alternatives were identified and are analyzed and compared in the remainder of this Chapter. ~~The following alternatives are compared in this chapter, and are described in further detail under separate headings.~~

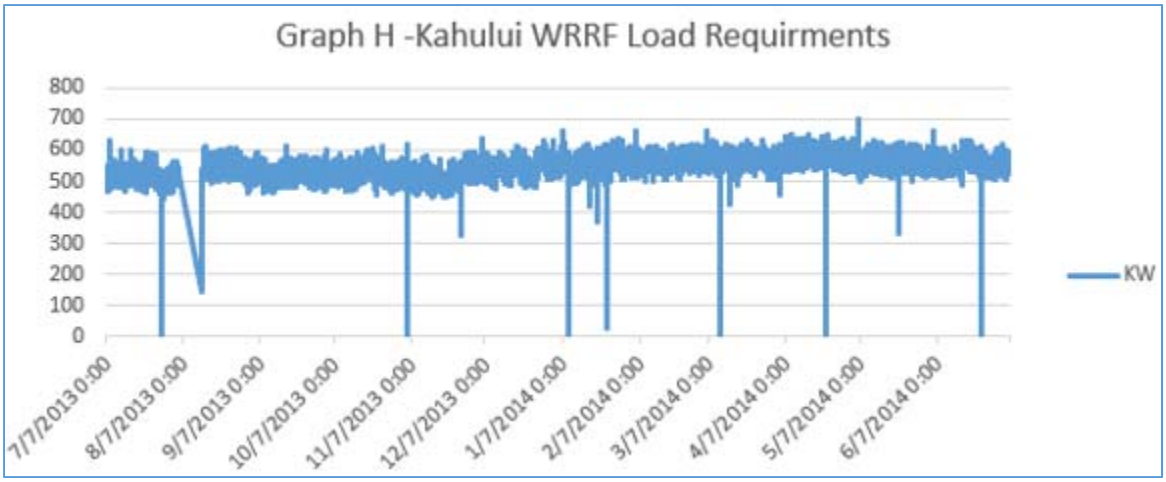
- **Alternative 1:** Proposed Action
- **Alternative 2:** Status Quo (No Project)
- **Alternative 3:** Solar with Battery Storage
- **Alternative 4:** Wind with Battery Storage
- **Alternative 5:** Landfill Gas
- **Alternative 6:** Biodiesel or Renewable Diesel

6.3 Project Attributes

To determine the extent to which the overall project goals would be met, each of the above alternatives was examined relative to the following attributes and questions:

- **Power Needs of the WKWWRF**: Does the alternative provide sufficient electrical power and energy to the WKWWRF?

  Figure 24 shows the electrical demand for the WKWWRF. The short-term average electrical load of the WKWWRF is approximately 530 kW. Sludge drying would require an additional 2,000 kW of equivalent electrical load. This assumes that an electric dryer is used at the WKWWRF to process 24,000 tons per year of municipally-produced sludge. The total power requirement for this option is therefore estimated to be 2,530 kW.



Source: County of Maui

Figure 24 Electrical Load requirements for the WKWWRF.

- **Renewable Energy:** Does the project advance the County's long-term energy goals of utilizing 100 percent renewable energy and achieving less electric grid dependence for the WKWWRF?

- **Sludge Handling, Processing, and Final Product**: Does the alternative provide cost certainty and stability, achieve landfill diversion, and provide a usable end product? Is the alternative capable of transforming dewatered sludge to a Class A fertilizer, such that it can be utilized by the County for its facilities?

- **Available Footprint**: Can the alternative be completed within the available footprint of the WKWWRF without negative impact to core WKWWRF operations?

- **Cost Certainty:** Does the alternative provide cost certainty for the WKWWRF electrical needs and sludge processing?

- **Air Quality Improvement:** Does the project improve the ambient air quality of the County?

- **Greenhouse Gases Reduction:** Does the alternative reduce greenhouse gas emissions?

- **Other Factors:** Does the alternative affect any other factors (either positively or negatively) not listed above?

Summary of Results

The results of the alternatives analysis are summarized below. Table 9 is a plus/minus (+/-) matrix describing whether an alternative meets the listed project attributes. For

example, a plus indicates that the alternative advances the attribute, a minus indicates that the alternative impedes the attribute, and a zero indicates that the alternative has a neutral effect regarding the attribute. If the attribute is advanced or impeded to a great degree, two plusses or minuses are indicated.

Table 9. Project Attributes Matrix

Attribute	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Power Needs	++	o	+	+	++	++
Renewable Energy	++	o	+	+	+	+
Sludge Processing	+	o	+	+	+	+
Available Footprint	+	+	- -	- -	-	+
Cost Certainty	++	o	+	+	++	o
Air Quality Imp.	o	o	o	o	o	o
GHG Reduction	+	o	+	+	+	o
Other Factors	o	o	+	+	- -	o
Total Score	**+9**	**+1**	**+4**	**+4**	**+4**	**+5**

The results summarized above indicate that Alternative 1—the proposed action—scores highest when the above attributes are applied. Therefore, it is concluded that the proposed action would be the most effective in advancing the County's goals that were described at the beginning of this chapter.

6.4 Assessment of Alternatives:

6.4.1 Alternative 1: Proposed Action

The proposed action is described in Chapter 1: Project Overview.

Power Needs of the WKWWRF: The proposed action achieves the minimum required electrical energy for the WKWWRF normal operations. Additionally, the proposed action would provide heat and power for the new sludge ~~processing~~ drying operation~~s~~.

Renewable Energy: The proposed action delivers 100 percent firm, renewable energy to the WKWWRF. Energy produced from anaerobically digested crops grown on Maui will provide energy that is locally produced, secure, and will provide ancillary recovery heat from the CHP for the drying processing of sludge.

Sludge Handling, Processing, and Final Product: The proposed action provides a solution to manage and control the processing of County generated sludge in an environmentally sustainable and economical manner. The sludge from the three WWRFs will be dried to a Class A biosolid product applicable for fertilizer products.

Approximately 24,000 tons per year of dewatered sludge will be reduced to 3,200 tons per year of biosolids through the drying process, resulting in a 7:1 ratio reduction by weight. The end product will be owned by the County, resulting in the opportunity to lower costs associated with procuring commercial fertilizers. Since this alternative utilizes the waste heat from the generation of electricity, approximately 66 percent of the drying process will be accomplished through use of the waste heat from the CHP unit (no additional fuel consumption). Completion of sludge drying will be accommodated utilizing the biogas from the digester. This scenario is for normal operations and in the event waste heat and biogas is not available, a back-up propane system will provide the required thermal heat.

Available Footprint: The anaerobic digester, CHP, and sludge drying components, including ancillary equipment, can be accommodated on less than one acre of the WKWWRF property. This results in a low impact to current operations and future expansion of the WKWWRF as necessary, and confines many of the impacts onsite.

Cost Certainty: The proposed action provides fixed charges for electrical generation and sludge processing, escalating at 2.2 percent annually. The proposed action will further provide stabilization of overall electrical energy costs through reduced utility grid dependence. This alternative provides an added benefit by way of delivery of a Class A biosolids fertilizer, which should offset costs of commercial fertilizers utilized at County facilities. Development costs and risks are solely borne by the contractor, which DEM determines to be a positive factor in that the County will not need to utilize funding for capital improvements to accomplish these goals.

Improve Air Quality: The proposed action results in the onsite emissions of air pollutants due to the combustion of biogas in the CHP engine and/or flare, as well as fugitive emissions from the sludge dryer. Because the proposed action will displace grid supplied power currently being used by the WKWWRF, corresponding reductions in emissions at Maui's fossil fuel fired power plants will be achieved. The MANA facility will create new electrical demand for powering the various mechanical processes, which will be supplied by the biogas-fueled CHP engine. For the purpose of this chapter, this additional process load, as well as the resulting biogas combustion emissions, are assumed to be approximately equal across all three alternatives relying on combustion to provide heat to the sludge dryer (i.e., Alternative 1 combusting biogas, Alternative 5 combusting landfill gas, and Alternative 6 renewable diesel or biodiesel). Air emission from these options are not significant as described in Chapter 2, but unavoidable unless the dewatered sludge is not dried (i.e., Alternative 2), or an electric dryer is utilized (Alternatives 3 and 4).

Reduce Greenhouse Gas Emissions: As mentioned under the prior attribute, the proposed action will displace grid supplied power currently being used by the WKWWRF. Maui Electric currently produces ~~25.8~~ 36.9 percent of its electricity using

renewable sources,[6] and consequently, ~~74.2~~ 73.1 percent from fossil fuels. The project will therefore result in the reduction of GHG emissions from Maui's power plants. Because the electricity produced by the project action will originate from the biogas fueled CHP engine, GHG emissions from the combustion processes (with the exception of a small quantity of supplemental propane) are considered biogenic[7], and therefore not contributing to climate change. Therefore, the project may be considered to be powered by 100 percent renewable electricity.

Other Factors: The proposed action alternative ~~provides for beneficial re-use~~ anticipates the beneficial use of 500-acres of agricultural land formerly used as a sugarcane plantation. ~~Currently, this land remains fallow.~~ The proposed action alternative would be the first commercial-scale power project utilizing energy crops on Maui, and would therefore demonstrate the feasibility of generating power using crop-derived biogas as a fuel. This is an important milestone for the State of Hawaii's statutory requirement to produce 100 percent of power from renewable sources no later than 2045.

6.4.2 Alternative 2: Status Quo (No Project)

The Status Quo (No Project) Alternative entails the continued co-composing of County-generated sludge at the Maui Central Landfill. The WKWWRF would continue to purchase grid-supplied electricity.

Power Needs of the WKWWRF: Alternative 2 does not advance the DEM's long-term power goal for the WKWWRF. Complete dependence on grid power remains.

Renewable Energy: Alternative 2 does not advance the DEM's long-term energy goals of utilizing 100 percent renewable energy for its facilities. Power supplied to the WKWWRF would continue to be at the utility rate of renewability, which current is 25.8 percent.[8]

Sludge Handling, Processing, and Final Product: Alternative 2 does not increase the suitability of sludge processing and disposal practices of the County. The present method is to transport dewatered sludge from the three WWRFs to a central co-composting facility located within the Central Maui Landfill site. The dewatered sludge is mixed with green waste at a private co-composting facility which offers EPA certified Class A compost products. The environmental sustainability of this project is predicated

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[6] Source: https://www.mauielectric.com/clean-energy-hawaii/clean-energy-facts, Accessed 12/2/2017.

[7] According to 40 CFR §98.6, "Biogenic CO_2 means carbon dioxide emissions generated as the result of biomass combustion from combustion units for which emission calculations are required by an applicable part 98 subpart," and, "Biomass means non-fossilized and biodegradable organic material originating from plants, animals or micro-organisms, including products, by-products, residues and waste from agriculture, forestry and related industries as well as the non-fossilized and biodegradable organic fractions of industrial and municipal wastes, including gases and liquids recovered from the decomposition of non-fossilized and biodegradable organic material."

[8] Op. Cit.

on the use of mixing dewatered sludge with green waste to produce the compost products.

Current sludge handling practices entail co-composting dewatered sludge with green waste at the Central Maui Landfill. Due to marketability challenges, large quantities of the resulting material are currently stockpiled. While stockpiles are exposed to the atmosphere, material internal to the stockpile will experience anaerobic conditions, and will produce methane (CH_4)—a GHG with a global warming potential 25 times that of carbon dioxide (CO_2). The proposed action alternative (as well as Alternatives 3 through 6) will convert the sludge to Class A dried biosolid. This material is more marketable, has considerably less volume, and is therefore less likely to be stockpiled. Because the biosolids have a lower moisture content, a higher surface area per volume, and are typically land-applied in thin layers (e.g., as landscaping ground cover), the biosolids are less prone to erosion and much more prone to aerobic decomposition. As a result, decomposition to CO_2 is maximized and CH_4 production is minimized, resulting in a GHG reduction on a CO_2 equivalent (CO_2e) basis, due to the significant difference in the global warming potential of the two gases.

Although dewatered sludge mixing with green waste is an acceptable method for compost manufacturing, the sustainability of this practice is questionable from a product marketability perspective. This is evidenced by typical stockpiles of unsold product, which also poses a risk of combustion. The aerobic digestion and ultimate co-composting with green waste requires more land area, is labor intensive, and requires continuous internal combustion mitigation and oversight. The high water content of the material lends to higher bulky transportation cost to end users. However, it is notable that the present method is established practice and has been functioning without major complications (aside from occasional compost pile fires) over the past two decades.

Available Footprint: Alternative 2 (by virtue of being the Status Quo, or No Project Alternative) can be accommodated entirely within the footprint of the WKWWRF. However, Alternative 2 occupies significant acreage at the landfill, with slow sales of product meaning longer term stockpiling of compost. It is unknown if the removal of sludge from the composting operation will result in a decrease in the footprint of the operation at the landfill.

Cost Certainty: As discussed under the prior attribute, the marketability of the current Class A product co-composted at the Maui Central Landfill is questionable. This has led to a recent increase in sludge tip fee from $83 per ton in 2016, to the current price of $103 per ton. The cost of processing sludge has increased 24 percent over the last year, and it would be economically burdensome to absorb this level of increase each year.

Similarly, the County does not have budget certainty with utility supplied energy to the WKWWRF. Present energy provided by the utility is a variable cost item for which it is difficult to forecast and budget for. The current source of grid-supplied power is

exposed to fluctuating imported oil pricing, making yearly forecasting difficult and necessitating the DEM to either request additional funding during the fiscal year or relinquish funding that was not needed in the first place.

Air Quality Improvement: Alternative 2 results in no changes to emissions from stationary sources within the County.

Reduce Greenhouse Gas Emissions: Alternative 2 results in no changes to GHG emissions related to the grid-supplied electrical energy to the WKWWRF and the provision of sludge processing by the existing contractor at the Central Maui Landfill. It is noted that the WKWWRF is currently not supplied with firm, renewable energy from the utility. However, the Proposed Utility Power Supply Improvement Plan (PSIP) filed with the Hawaii Public Utility Commission by HECO stipulates that firm renewable energy is planned from a central distribution generation facility in the future. Due to a lack of detail on how this will be accomplished, the County does not expect these plans to materialize over the next several years.

Other Factors: Alternative 2 does not affect any factors other than those discussed above.

6.4.3 Alternative 3: Solar with Battery Storage

Alternative 3 entails the generation of renewable electricity via an array of photovoltaic panels to power an electric sludge dryer and to meet the electrical need of the WKWWRF. Because solar power is a non-firm form of electric generation, a battery storage system would need to be incorporated into the design. This alternative benefits from analysis by way of a contract between Maui County and Strategic Alliance Group, LLC, which involved provision of solar power with battery backup to the WKWWRF and other County sites. Ultimately, the DEM determined that installation of the contractor's planned 600 kW photovoltaic system, designed to be built over the wastewater treatment pond due to site spacing restrictions, was not compatible with the primary uses of the WKWWRF. The contract was amended to remove the WKWWRF in August 2016.

Power Needs of the WKWWRF: This alternative involves serious technological feasibility issues with respect to providing the required level of power on a continuous basis. For solar power plants in general, performance metrics can be estimated from the Department of Energy National Research Energy Lab's (NREL) computation tool. This tool, "PVWatts,"[9] calculates a capacity factor of 26.8 percent "as available" for solar energy generation. The computation utilizes six years of historical weather data for the Kahului region. Battery storage further contributes to the "as available" metric by providing up to four hours of additional energy per day by deploying the latest

[9] Available at: http://pvwatts.nrel.gov/, Accessed 12/9/2017

advancements in lithium-ion battery storage. Assuming the battery storage has zero downtime, the "as available" capacity factor increases to 43 percent. Thus, the combined availability would require non-renewable grid supply for the remaining 57 percent of the time. Based on this, it is unlikely that a solar-based solution will be able to deliver the required power independently, without significant reliance on the grid during the nighttime hours.

Renewable Energy: While solar power would provide a degree of renewable energy to the WKWWRF, and possibly the new sludge drying process, it is not feasible to power all operations with renewable energy. Hence, reliance on grid-supplied power, at its level of renewability, will remain.

Sludge Handling, Processing, and Final Product: Alternative 3 could be designed to provide the same level of sludge processing as Alternative 1 (proposed action). The assumptions and conclusions assume however additional acreage and battery storage would be required. Because no waste heat would be available for use in drying sludge, this alternative would increase the overall energy required to achieve DEM's dual goals of power generation and sludge processing.

Available Footprint: The NREL Land Use Requirements for Solar Power Plants in the United States Report stipulates up to 10.0 acres of land would be required to build the solar array project (with a 43 percent capacity factor) for the WKWWRF.[10] This land area is not available on the WKWWRF site. Available land near the facility is severely limited. This presents a major obstacle to Alternative 3.

Cost Certainty: Because a solar project with battery storage is not likely to be able to provide 100 percent of the power required by the WKWWRF, Alternative 3 will continue to require the purchase of power from the grid. To the degree that this is required (e.g., if 57 percent of electrical energy is purchased from the grid), the cost uncertainties to the County remain. Alternative 3 would provide cost certainty regarding sludge processing.~~disposal.~~

Air Quality Improvement: Alternative 3 would provide a level of renewable power to the WKWWRF. It is infeasible that this alternative will be able to provide all the power required by both the WKWWRF and the sludge drying operation. The overall project will therefore result in a net increase in electrical energy demanded from the grid, and hence, an increase in emissions from MECO power plants.

[10] See: https://www.nrel.gov/docs/fy13osti/56290.pdf, Accessed 12/9/2017

Reduce Greenhouse Gas Emissions: For the reasons stated above, the overall project would likely result in a net increase in electrical energy demanded from the grid, and hence, an increase in GHG emissions from MECO power plants. However, for the reason specified under Alternative 1, this alternative would similarly result in a decrease in GHG emissions from sludge processing, as the dried Class A biosolids are much more prone to slower, aerobic decomposition (forming CO_2) compared to the current practice which entails some level of anaerobic decomposition (forming CH_4).

Other Factors: Alternative 3 potentially impacts endangered or migratory birds known to be present in the general vicinity of the WKWWRF and the nearby wildlife refuge.[11] ~~Alternative 3 does not affect any factors other than those discussed above.~~

6.4.4 Alternative 4: Wind with Battery Storage

Alternative 4 entails the generation of renewable electricity using wind turbines to power an electric sludge dryer and to meet the electrical need of the WKWWRF. As with Alternative 3, wind power is a non-firm form of electric generation, and therefore a battery storage system would need to be incorporated into the design to supply "firm" power.

Power Needs of the WKWWRF: Alternative 4 involves the same serious technological feasibility issues with respect to providing the required level of power on a continuous basis as Alternative 3 (solar with battery storage). To assess the feasibility of constructing wind turbines with a battery storage to power a sludge drying operation, the performance metrics from NREL's *Wind Energy Resource Atlas of the United States*[12] (Wind Atlas) were referenced. This Wind Atlas states:

> *"Areas designated Class 3 or greater are suitable for most utility-scale wind turbine applications, whereas class 2 areas are marginal for utility-scale applications but may be suitable for rural applications. Class 1 areas are generally not suitable, although a few locations (e.g., exposed hilltops not shown on the maps) with adequate wind resource for wind turbine applications may exist in some Class 1 areas. The degree of certainty with which the wind power class can be specified depends on three factors: the abundance and quality of wind data, the complexity of the terrain, and the geographical variability of the resource. A certainty rating was assigned to each grid cell based on these three factors and is included in the Wind Energy Resource Atlas of the United States."*

[11] See: A Review of Avian Monitoring and Mitigation Information at Existing Utility-Scale Solar Facilities at www.evs.anl.gov/downloads/ANL-EVS_15-2.pdf.

[12] October 1986. Available at: http://rredc.nrel.gov/wind/pubs/atlas/, Accessed 12/4/2017.

Figure 25 below contains Figure 3-65 of the Wind Atlas, showing the annual average wind power available for Maui County. The figure shows that the majority of the island has been designated Class 1 and 2, indicating low-grade wind resources not capable of supporting a utility-scale wind turbine installation. The central valley contains areas designated as Class 3, which would be suitable for a wind turbine installation, in theory.

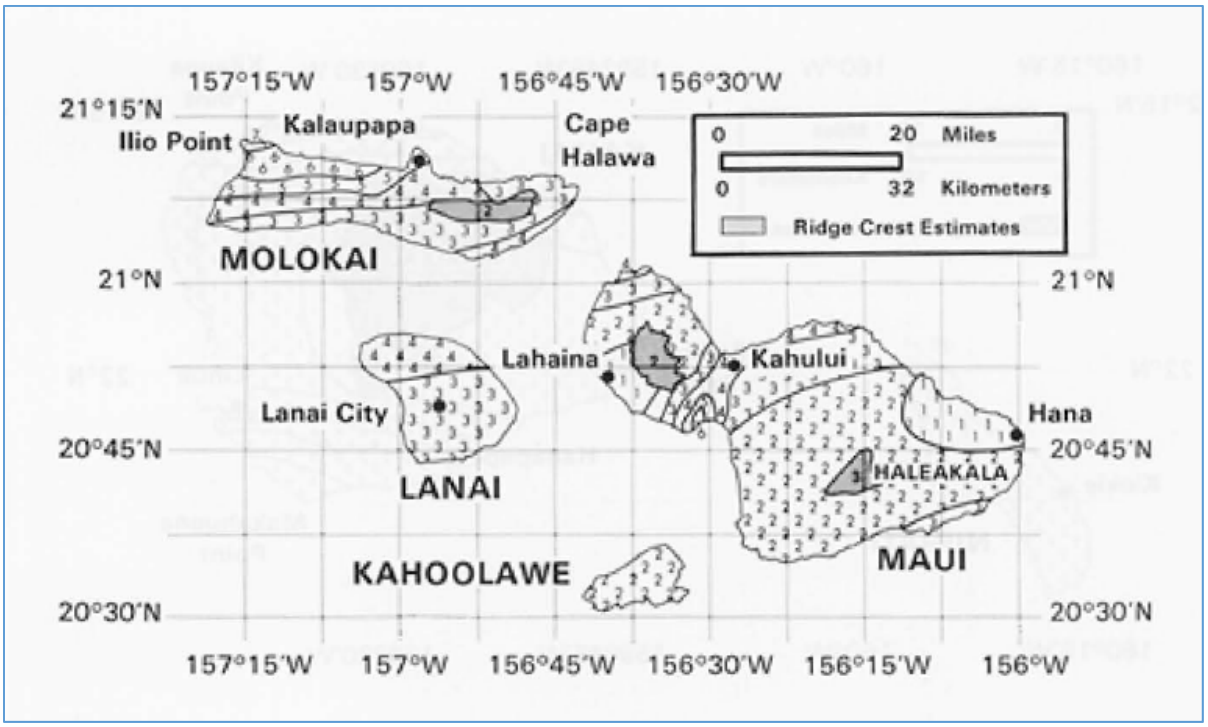


Figure 25 Maui County Annual Average Wind Power[13]

Renewable Energy: While wind power would provide a degree of renewable energy to the WKWWRF, and possibly the new sludge drying process, it is not feasible to power all operations with renewable energy. Hence, reliance on grid-supplied power, at its level of renewability, will remain.

Sludge Handling, Processing, and Final Product: Alternative 4 would be designed to provide the same level of sludge processing as Alternative 1 (proposed action). The assumptions and conclusions assume that this could be achieved however additional land would be required. Given that no waste heat would be available for use in drying sludge, this alternative would increase the overall cost and energy required to achieve DEM's dual goals of power generation and sludge processing.

[13] Ibid. Table 3-65.

Available Footprint: Alternative 4 would require the construction of several wind turbines. This land area is not available on the WKWWRF site. Available land near the facility is severely limited, and is subject to the further constraints of the Airport Impact Zone of the Kahului Airport, as described by the FAA's *Land Use Compatibility and Airports, a Guide for Effective Land Use Planning*.[14]

Cost Certainty: Because a wind project with battery storage is not likely to be able to provide 100 percent of the power required by the project, Alternative 4 will continue to require the WKWWRF (as well as the sludge drying operation) to purchase power from the grid. To the degree that this is required, the cost uncertainties to the County remain. Alternative 4 would provide cost certainty regarding sludge processing ~~disposal~~.

Air Quality Improvement: Alternative 4 would provide renewable power to the WKWWRF, as well as the included sludge drying process. However, it is unlikely that this alternative will be able to provide all the power required by both the WKWWRF and the new sludge drying operation. The overall project would likely result in a net increase in electrical energy demanded from the grid, and hence, an increase in emissions from County power plants.

Reduce Greenhouse Gas Emissions: For the reasons stated above, the overall project would likely result in a net increase in electrical energy demanded from the grid, and hence, an increase in GHG emissions from County power plants. However, for the reason specified under Alternative 1, this alternative would similarly result in a decrease in GHG emissions from sludge processing, as the dried Class A biosolids are much more prone to slower, aerobic decomposition (forming CO_2) compared to the current practice which entails some level of anaerobic decomposition (forming CH_4).

Other Factors: Wind farms currently sited on Maui have recently reported higher-than-permissible mortality rates of the endangered Hawaiian hoary bat and Nēnē.[15] While not directly evaluated in the context of this chapter, these constraints nonetheless illustrate the considerable technologic feasibility issues related to power generation utilizing with wind turbines at the WKWWRF.~~directly powering a sludge processing project with a wind turbine installation.~~

6.4.5 Alternative 5: Landfill Gas

Alternative 5 entails the generation of power within a CHP engine that is fueled by landfill gas, a source of renewable fuel. Similar to Alternative 1 (proposed action),

[14] Available at: https://www.faa.gov/airports/environmental/land_use/,

[15] November 27, 2017 Department of Land and Natural Resources (DLNR), *Notice of Public Hearing on the Draft habitat Conservation Plan Amendment for Kaheawa Wind Farm II, Mā'alaea, Lāhaina District, Maui Island*, available at http://dlnr.hawaii.gov/dofaw/category/announcements/, Accessed 12/4/2017

which uses biogas created by anaerobic digestion of organic materials (energy crops), landfill gas is also primarily methane and is produced by the decomposition of organic waste within a landfill. A "gas collection and control system" is currently used by the County to collect landfill gas in accordance with operating permits. The only viable source of landfill gas on Maui is the Central Maui Landfill, which currently collects and flares its landfill gas. The landfill is located 3.3 miles to the southeast of the WKWWRF. Therefore, this alternative would require the construction of pipeline of this length, fed by a gas compressor and treatment system, or the transport of the landfill gas via trucks.

The landfill gas from this location is presently under contract to Maui Resource Recovery Facility, LLC, a subsidiary of Anaergia Services and not available. A separate landfill gas-to-energy project at the landfill is feasible, which would not require construction of a pipeline to the WKWWRF or trucking of the landfill gas. Beneficial use of the CML's landfill gas is not precluded by the implementation of Alterative 1 (proposed action).~~, and parallel renewable energy projects may be required to meet the utility's long-term goal of supplying 100 percent renewable energy through the grid.~~

Power Needs of the WKWWRF: Alternative 5 would provide a similar amount ~~the same level~~ of power as Alternative 1, as a similarly sized CHP engine would be used to provide electrical power to both the WKWWRF and new sludge processing facilities, as well as heat to the ~~anaerobic digester and~~ sludge dryer.

Renewable Energy: The landfill gas at CML is already under contract, and is therefore not available for fuel at the WKWWRF. Implementation of this alternative would preclude a future, separate landfill gas-to-power project at the CML~~, which may impede the utility's long-term goal of delivering 100 percent renewable power via the grid~~.

Sludge Handling, Processing, and Final Product: Alternative 5 would be designed to provide the same level of sludge processing as Alternative 1 (proposed action). The assumptions and conclusions assume that this will be achieved.

Available Footprint: Given the inability to "wheel" power using MECO transmission lines as well as DEM's stated goal of co-locating firm power generation component with sludge drying, Alternative 5 entails installation of a CHP unit and construction of sludge processing facilities at the WKWWRF, a landfill gas compressor and treatment system at the CML, with a pipeline connecting the two facilities (or a network of trucks). Because the project cannot be constructed within the footprint of a single facility, the implementation costs are significantly higher and multiple additional land use approvals would be required. Additionally, installation of a pipeline would involve multiple state and county roadways, in addition to private lands; therefore, land acquisition for the pipeline area is an additional financial disincentive to this alternative.

Cost Certainty: Alternative 6 would provide ~~the same~~ a similar level of cost certainty as Alternative 1 (proposed action). ~~Because the fuel source is secured, as well as the sludge processing and disposal needs, cost certainty is achieved.~~

Improve Air Quality: Alternative 5 results in the WKWWRF onsite emissions comparable to Alternative 1, as the combustion of landfill gas in the CHP engine and/or flare, as well as fugitive emissions from the sludge dryer. This alternative results in a decrease in emissions at the Central Maui Landfill, as the landfill gas would no longer be flared.

Reduce Greenhouse Gas Emissions: Similar to Alternative 1, Alternative 5 will not result in an increase in electrical energy demanded from the grid, and hence, an increase in GHG emissions from MECO power plants. Alternative 5 would result in the cessation of landfill gas combustion at the CML, however, and combustion emissions are considered "biogenic CO_2". As described in Alternative 1, biogenic CO_2 is excluded from mandatory GHG reporting and is not attributed to causing climate change impacts. Hence, the cessation of the combustion of landfill gas is not considered a surplus reduction in GHG emissions.

For the reason specified under Alternative 1, this alternative would similarly result in a decrease in GHG emissions from sludge processing, as the dried Class A biosolids are much more prone to slower, aerobic decomposition (forming CO_2) compared to the current practice which entails some level of anaerobic decomposition (forming CH_4).

Other Factors: The landfill gas required for Alternative 5 is presently under contract to Maui Resource Recovery Facility, LLC, a subsidiary of Anaergia Services and not available. This is a major obstacle to implementing this alternative.

6.4.6 Alternative 6: Biodiesel or Renewable Diesel

Alternative 6 entails the generation of power within a CHP engine that is fueled by biodiesel or renewable diesel that would be purchased and stored for onsite use. This option is similar to Alternative 1 (proposed action) and Alternative 5 (landfill gas) with the difference being the type fuel used in the CHP engine.

The term "biodiesel" can be defined as a fuel comprised of mono-alkyl esters of long chain fatty acids derived from vegetable oils or animal fats, designated B100, and meeting the specifications set forth by the ASTM International in the latest version of Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels D6751 contained in the ASTM publication entitled: Annual Book of ASTM Standards, Section 5.[16]

[16] See the California Low Carbon Fuel Standard 17 CCR § 95481 (a)(8)

The term “renewable hydrocarbon diesel” or simply “renewable diesel” refers to a diesel fuel that is produced from nonpetroleum renewable resources but is not a mono-alkyl ester, and which is registered as a motor vehicle or fuel additive under 40 CFR 79.[17]

Currently on Maui, the only biodiesel that is available is produced at a facility on Hawaii Island, primarily from used cooking oils. The finished product is shipped to Maui for use primarily as a transportation fuel, thus meeting the definition of biodiesel above, but not renewable diesel. There are no sources of renewable diesel available on Hawaii, although several projects are in the research and development phases. At present, biofuel crop yields and harvesting technologies are generally not advanced to the stage that they are economically feasible. Provided development, testing, and validation of biofuel energy crops advances to the degree that a commercial-scale renewable diesel production facility is developed in Hawaii, the use of renewable diesel may be a viable project option.

However, for the purposes of evaluating this alternative it is presumed that Alternative 6 will utilize the imported biodiesel product that is currently available, but may switch to a renewable diesel product when and if available. According to fuel carbon intensity tables by CARB pursuant to their Low Carbon Fuels Standard, the average carbon intensity of biodiesel is 35.82 grams per gallon, compared to 31.22 grams per gallon for renewable diesel. Convention petroleum diesel has a carbon intensity of 102.01 grams per gallon.

Power Needs of the WKWWRF: Alternative 6 would provide the same level of power as Alternatives 1 and 5, as a similarly sized CHP engine would be used to provide electrical power to both the WKWWRF and new sludge processing facilities, as well as heat to the anaerobic digester and sludge dryer.

Renewable Energy: Alternative 6 provides a degree of renewable energy, equivalent to the carbon intensity of the biodiesel or renewable fuel that is used.

Sludge Handling, Processing, and Final Product: Alternative 6 would be designed to provide the same level of sludge processing as Alternative 1 (proposed action). The assumptions and conclusions assume that this will be achieved.

Available Footprint: Alternative 6 entails construction of sludge processing facilities at the WKWWRF. Additionally, biodiesel (or renewable diesel) receiving facilities and a storage tank would be required at the WKWWRF. It is expected that these facilities can be accommodated on the existing available footprint.

Because both Alternative 1 (proposed action) and Alternative 6 (renewable diesel) entail the use of energy crops to as a fuel source for the CHP engine, it is appropriate

[17] Ibid. § 95481 (a)(71)

to compare the land needed to produce the respective crops under each alternative, even though this effect occurs outside of the available footprint of the WKWWRF.

The April 2017 web article entitled *Biogas, A Renewable Biofuel*[18], states following under the heading of "How do biofuels compare on energy crop yields?"

> *"There is no "silver bullet" in producing fuel from a sustainable energy crop. Fuel yields are limited by photosynthetic efficiency (less than 3% of solar energy is captured in even high yield crops), the efficiency of the conversion process, and the energy used in the production and conversion process (a significant cost for ethanol production). On a per acre basis, biogas production is far more efficient in capturing the energy found in energy crops. While the convenience and energy density of liquid fuels is an admirable target, if maximizing energy recovery from biomass and wastes is targeted, biogas production is the best choice. Further, even where ethanol and biodiesel production is used, biogas production from their waste products can improve the energy balance of the overall conversion process."*

The benefits of biogas are further shown in **Figure 26**, which compares the energy production value from various biofuel crops. Alternative 1 (proposed action) would use a combination of perennial grasses (such sorghum) and corn silage as the feedstock for biogas production. The net energy production from this activity would be at least six times greater than the production of feedstocks for biodiesel required under Alternative 6.

[18] Dr. Wilkie, Ann C., April 24, 2017. University of Florida, Soil and Water Sciences Department. Available at: http://biogas.ifas.ufl.edu/biogasdefs.asp. Accessed 12/4/2017.

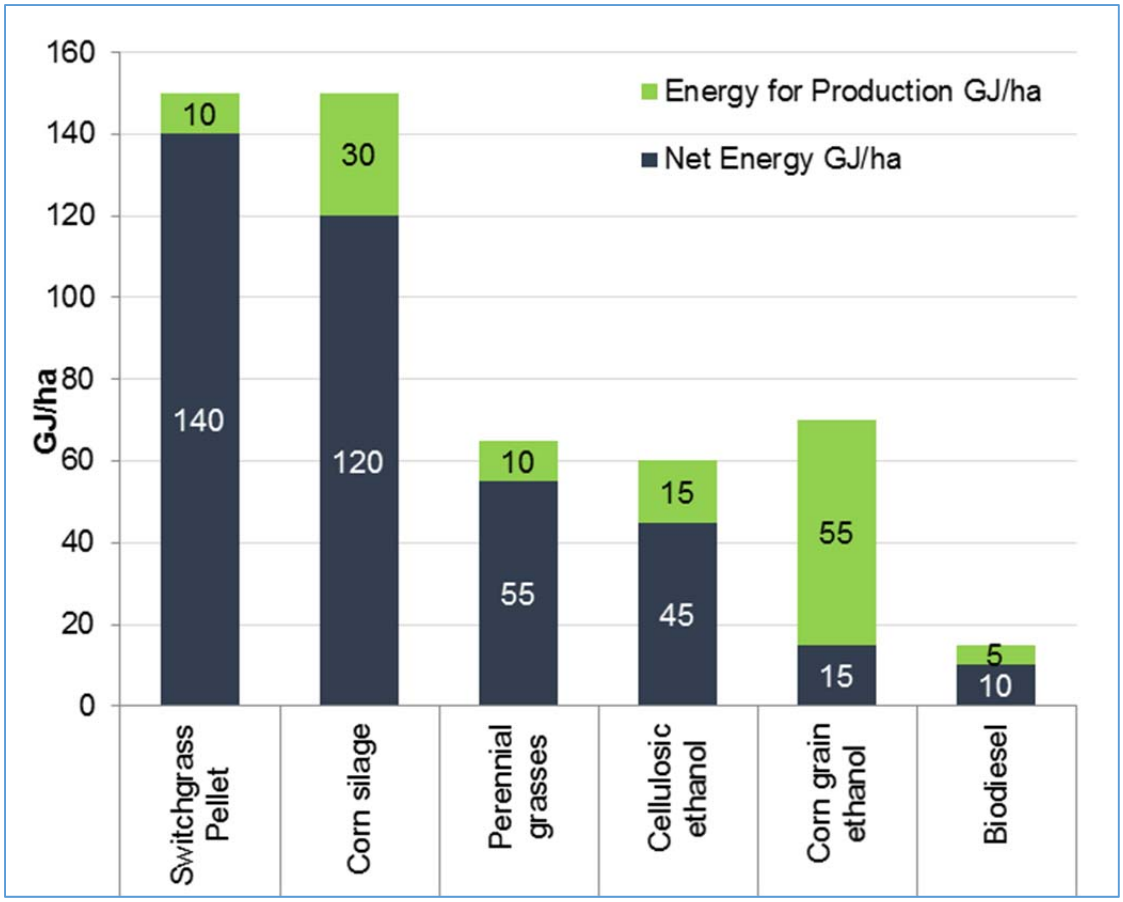


Figure 26 Energy Density Comparison of Biofuel Crops

Cost Certainty: Alternative 6 relies on biodiesel or renewable diesel as a fuel source. These are also referred to as "drop-in" fuels, meaning that they may be used a substitute for petroleum-based diesel, with no modifications to storage facilities, dispensing equipment, or vehicle/equipment engines. As a result, the price of biodiesel or renewable diesel will fluctuate to the same degree as crude oil prices, as shown in Figure 22. As a result, Alternative 6 does not provide cost certainty regarding electricity costs for the WKWWRF and the new sludge processing facility. Alternative 6 does provide cost certainty regarding sludge processing. ~~disposal.~~

Improve Air Quality: Alternative 6 results in onsite emissions comparable to Alternatives 1 and 5, from the combustion of biodiesel in the CHP engine, as well as fugitive emissions from the sludge dryer.

Reduce Greenhouse Gas Emissions: Similar to Alternative 1, Alternative 6 will not result in an increase in electrical energy demanded from the grid, and hence, no increase in GHG emissions from MECO power plants will occur. The combustion emissions from biodiesel or renewable diesel are not fully considered "biogenic CO_2," in the way that the emissions of biogas emissions are. As discussed under the description

of this option, biodiesel or renewable diesel has a carbon intensity approximately one-third that of conventional petroleum-derived diesel, and hence GHG lifecycle emissions are approximately one-third as well.

However, as part of the evaluation, it is important to note that all biodiesel or renewable diesel produced in Hawaii will be certified as a fuel for on-highway and off-road diesel engines. Production volumes are not expected to exceed the forecasted demand for fuels in conventional diesel vehicles and equipment. Likewise, any biodiesel or renewable diesel produced ultimately produced will be usable by HECO, which will create added demand. As a result, to the degree that an Alternative 6 project uses biodiesel or renewable diesel, the fuel will not be available for use by other sources, which will then be required to purchase an equivalent amount of petroleum-based fuels. If this occurs, Alternative 6 will not result in any net decrease in GHG emissions from fuel combustion.

For the reason specified under Alternative 1, this alternative would similarly result in a decrease in GHG emissions from sludge processing, as the dried Class A biosolids are much more prone to slower, aerobic decomposition (forming CO_2) compared to the current practice which entails some level of anaerobic decomposition (forming CH_4).

Other Factors: Alternative 6 does not affect environmental factors other than those discussed above.

Chapter 7: Summary of Permanent and Lasting Commitment of Resources

The proposed project would have limited commitment from the County for lands in achieving a project that provides a firm, renewable energy source for the WKWWRF and converts municipally produced sludge into a fertilizer in an environmental and cost-effective manner.

The commitments do, however, require unambiguous support from the County DEM to provide valued input and leadership in fostering public outreach and continued community involvement throughout the project development and operation. These commitments include the continued leadership and implementation of the stated County renewable energy mandates and goals. Additionally, commitment in the adherence and compliance to the contractual obligations stipulated in the project's service agreement is required during the life of the project.

Chapter 8: Relationship between Short-term Uses of Environmental Resources and Long-term Productivity

The proposed project will affect short-term uses of environmental resources, particularly through construction activities, which will utilize fuel, water, and material resources and will temporarily affect air and noise quality. As previously discussed, these impacts will be addressed through the utilization of Best Management Practices and other mitigation measures. With respect to the growing of the biomass for the digester feedstock, the anticipated use of ~~the hundreds of~~ approximately 500 acres of land for cultivation will also result in short- and long-term uses of the land resource. Cultivation activities will adhere to agricultural best practices and the agricultural operations will be performed by a company with decades of experience in farming. The short-term uses of these environmental resources will have a beneficial effect as it relates to the labor force and the economy.

These short-term uses of environmental resources are necessary to reap the long-term productivity that the project offers. In the long-term, ~~vast tracts of~~ agricultural lands will remain in active agriculture and will keep the lands green. The renewable energy generation from the biomass feedstock will not only result in firm, power generation, but will also contribute to a viable renewable energy option to help Maui County attain its ~~lofty~~ renewable energy goals. In addition, this project will help to diversify the economy and will provide jobs ~~and opportunities for expansion~~. Overall, the positive long-term productivity will be evidenced by both the agricultural component and the regional economic benefit component, which will promote employment, earnings, capital investment, and higher overall economic output for the community.

Chapter 9: Unresolved Issues

At the time that the DEIS was published, an unresolved issue remained regarding the land application of the digestate (a semi-liquid byproduct of anaerobic digestion of the energy crops). During this EIS process, however, MANA has consulted with the DOH Wastewater Branch regarding appropriate requirements for land application. The DOH Wastewater Branch responded by outlining requirements for development and implementation of a nutrient management plan, and ensuring sufficient resources for monitoring, prior to land application. *See* Appendix J, Letter Q. MANA and the County will develop a nutrient management plan and provide appropriate implementation resources in consultation with, and subject to the approval of, the DOH Wastewater Branch prior to land application. As such, there is no longer an unresolved issue regarding the land application of the digestate.

~~An unresolved issue remaining from this EIS includes the following:~~

~~Digestate Land Application: The State DOH Wastewater Branch has indicated in a September 24, 2017 response to the September 8, 2017, EISPN that:~~

> ~~*In addition, the Department of Health, Wastewater Branch will not allow the untreated liquid digestate removed from the anaerobic digester by Central Maui Feedstocks LLC to be land applied. In accordance with Hawaii Administrative Rules (HAR), Chapter 11-62, Wastewater Systems, the digestate will need to be dewatered at the Kahului Reclamation Facility, similar to the processing of wastewater sludge.*~~

~~The land application process for the digestate agricultural by-product from the anaerobic digestion of energy crops will need further clarity from both the State DOH Wastewater Branch and the Solid Waste Branch. Additional consultation from the State Department of Agricultural and other like agencies and subject matter experts will be required.~~

Chapter 10: List of Anticipated Permits and Approvals

The proposed project will be sited on land located within the State Land Use Conservation District and the County of Maui Special Management Area. The following project approvals are anticipated.

Federal Permits and Approvals

- Federal Aviation Administration Notice of Proposed Construction or Alteration

State Permits and Approvals

- Conservation District Use Permit
- Department of Health Clean Air Branch, Non-Covered Source Air Permit
- Department of Land and Natural Resources Shoreline Certification
- Special Flood Hazard Area Development Permit (as applicable)
- National Prevention Discharge Elimination System Permit (as applicable)
- Wastewater Biosolids to Class A fertilizer use permit that is in accordance with Hawaii Administrative Rules (HAR), Chapter 11-62, Subchapter 4, Wastewater Sludge Use and Disposal
- Land Application Permit of digestate by-product as regulated and approved by the Department of Health.
- Historical Preservation District, Hawaii Administrative Rules 13-275-3 including an application for an Archeological Inventory Study and approval of the study and findings
- Compliance with all applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, Wastewater Systems, including for Wastewater
- Community Noise Permit (as applicable)

County of Maui Permits and Approvals

- HRS Chapter 343 Environmental Impact Statement
- Special Management Area Use Permit
- Storm Water Pollution Prevention Plans
- Grading, building, electrical, plumbing and other construction permits

Chapter 11: Agencies, Organizations, and Individuals Consulted

The proposed project has undergone several iterations of early consultation to conform with HRS, Chapter 343 and HAR, Chapter 11. Initially, MANA worked under the assumption that the project would qualify for a Finding of No Significant Impact (FONSI). Consequently, MANA pursued the Environmental Assessment process and circulated an early consultation letter for an Environmental Assessment of the project on February 28, 2017.

During ensuing discussions between MANA and the DEM, the DEM concluded that, upon reviewing initial comment letters from the early consultation and various comments and advice from project stakeholders, an EIS should be prepared for the project. More specifically, the DEM determined that an Act 172-12 EIS Preparation Notice ("Direct to EIS") would be the most prudent path for environmental information sharing and stakeholder participation. The availability of the project EISPN was published in the June 23, 2017 Environmental Notice.

On August 24, 2017, the DEM filed a letter with the OEQC withdrawing the June 23, 2017 EISPN. The DEM determined, through their judgment and experience, that additional triggers under Section 343-5, HRS apply to the proposed action and indicated in their EISPN withdrawal letter that a revised and updated EISPN would be filed, in essence superseding the June 23, 2017 EISPN.

Consequently, a revised and updated EISPN for the project was published in the September 8, 2017 Environmental Notice. For clarity, MANA provided an updated letter to all participants from the two previous early consultation periods explaining the resubmittal of the EISPN.

Therefore, there were three early consultation periods for the proposed project: one that started on February 28, 2017 (early consultation for an EA), one that started on June 23, 2017 (initial EISPN, subsequently withdrawn), and one that started on September 8, 2017 (current EISPN). A table with the agencies, organizations, and individuals consulted through the three early consultation processes and a notation if these entities responded to the early consultation request was prepared (note: a bold "**x***" in the table indicates a comment letter was received). See Table 11.

Table 11. Agencies, Organizations, and Individuals Consulted

No.	Entity	2/28/17 EA Consultation Letter Sent	6/23/17 EISPN Letter Sent	9/12/17 EISPN Letter Sent
	FEDERAL			
1	Department of Agriculture			x
2	Department of Agriculture, National Resources Conservation Service	x	x	x
3	Department of Army, Army Corps of Engineers		x	x
4	Department of Army, Regulatory Branch Ft. Shafter	x		x
5	Department of Commerce, National Marine Fisheries Service			x
6	Department of Homeland Security, Coast Guard			x
7	Department of the Interior, Geological Survey, Pacific Islands Water Science Center			x
8	Department of Interior, Fish and Wildlife Service	**x***	x	x
9	Department of Interior, National Parks Service			x
10	Department of Navy, Pacific Division Naval Facilities			x
11	Department of Transportation, Federal Aviation Administration	x	x	x
12	Department of Transportation, Federal Highways Administration			x
13	Department of Transportation, Federal Transit Administration			x
14	Environmental Protection Agency, Region IX			x
	STATE OF HAWAII			
15	Department of Accounting and General Services	x	x	x
16	Department of Agriculture	x	x	x
17	Department of Business, Economic Development and Tourism	x	x	x
18	Department of Business, Economic Development and Tourism, Research Division Library			x
19	Department of Business, Economic Development and Tourism, Strategic Industries Division			x
20	Department of Business, Economic Development and Tourism, Office of Planning	**x***	x	x
21	Department of Defense			x
22	Department of Education	x	x	x
23	Department of Education, Hawaii State Library, Hawaii Documents Center			x
24	Department of Education, Hawaii State Library, Kahului Regional Library			x
25	Department of Hawaiian Home Lands	x	**x***	x
26	Department of Health	**x***	**x***	**x***
28	Department of Land and Natural Resources	**x***	**x***	**x***
29	Department of Land and Natural Resources, State Historic Preservation Division	x	x	x
30	Department of Transportation	**x***		x
31	Legislative Reference Bureau Library			x
32	Office of Hawaiian Affairs, Honolulu	x	x	x
33	State Land Use Commission	x	x	x

34	University of Hawaii, Water Resources Research Center			x
35	University of Hawaii, Environmental Center			x
36	University of Hawaii, Maui College Library			x
	COUNTY OF MAUI			
37	Department of Environmental Management	**x***	x	x
38	Department of Fire and Public Safety	x	x	x
39	Department of Housing and Human Concerns			**x***
40	Department of Parks and Recreation			**x***
41	Department of Planning	**x***	**x***	x
42	Department of Public Works	**x***	x	**x***
43	Department of Water Supply	**x***	x	x
44	Maui Civil Defense Agency		x	x
	ELECTED OFFICIALS			
45	Senator Mazie Hirono			x
46	Representative Tulsi Gabbard			x
47	Senator Rosalyn Baker	x	x	x
48	Senator Kalani English	x	x	x
49	Senator Gilbert Keith-Agaran	x	x	x
50	Representative Joseph Souki	x	x	x
51	Representative Justin Woodson	**x***	x	x
52	Council Member Elle Cochran	x	x	x
53	Council Member Don Guzman			x
	OTHER CONSULTED PARTIES			
54	Hawaiian Telecom	x	x	x
55	Maui Electric Company, Ltd.			x
56	Maui News			x
57	Maui Tomorrow Foundation Inc.	x	**x***	x
58	Shaka Movement	x	x	x
59	Sierra Club of Hawaii	x	**x***	**x***
60	Surfrider Foundation Maui Chapter	x	x	x

A summary of the substantive comments received during the early consultation period ~~requests~~ is included below. If multiple comment letters were received, the summary below consolidates the information from all comments letters. Refer to **Appendix H** for a complete reproduction of both the comment letter(s) received and the corresponding response.

FEDERAL

US Fish & Wildlife Service – They stated that there are several listed animal species in the project area including the federally endangered Hawaiian hoary bat, Hawaiian petrel, hand-rumped storm-petrel, threatened Newell's shearwater, Hawaiian stilt, and Hawaiian coot. There are also two endangered insects, the yellow-faced bee and the Blackburn's sphinx moth, including critical habitat nearby. They offered several mitigation measures to be employed to minimize impacts to the listed animal species.

Response – The proposed project will implement the identified concerns to minimize impacts to listed animal species. Applicable mitigation measures have been included in the Draft EIS. The project developers will coordinate with the USF&WLS throughout the design process.

STATE OF HAWAII

DBEDT, Office of Planning – They stated requirements of project compliance with HAR Chapter 11-200 and HRS, Chapter 226 related to technical, economic, social, and environmental characteristics and the Hawaii State Planning Act, respectively. They also requested an analysis on coastal hazards, coastal zone management, special management area, and the protection of the water and marine resources. They provided elements that they would like to see in the Draft EA, including site characteristics, mitigation measures to protect the coastal ecosystem, and cumulative impact analysis on coastal resources. They referenced a number of tools that should be used in the design process.

Response: The Draft EIS addresses HAR, Chapter 11-200 and HRS, Chapter 226. The Draft EIS also incorporates project characteristics, potential impacts and mitigation measures, a CZM and SMA discussion, and flood hazard, water and marine resources, and cumulative impact analysis. The project developer reviewed the guidance and evaluative tool references provided and incorporated applicable elements to the project design.

DOH Environmental Planning Office – They stated requirements of project compliance with HAR Chapter 11-200, related to direct, indirect, and cumulative impacts resulting from the project. They also provided references and guidance to support a sustainable and healthy project design. They requested compliance with applicable requirements of the State DOH Clean Water, Wastewater, and Solid and Hazardous Waste Branches, including fugitive dust and noise concerns. They also requested review from an Environmental Justice perspective and a discussion of climate change.

Response: The proposed project will comply with HAR Chapter 11-200, as well as Federal and State environmental health land use guidance. The Draft EIS discusses the requirements of and the project's adherence to the Clean Water, Wastewater, and Solid and Hazardous Waste Branches, including fugitive dust and noise concerns. The proposed project elements do not cause discrimination with respect to Environmental Justice. In addition, likely effects of climate change are also included in the Draft EIS.

DOH Maui District Health Office– They recommended the incorporation of applicable standard comments from the DOH website.

Response: Applicable measures have been incorporated into the Draft EIS.

DOH Wastewater Branch – They stated that the project must comply with applicable CFR and HAR regulations related to the use of sludge-derived Class A soil amendment,

the sludge drying system, and the disposition of digester supernatant. They also advised of design considerations to address the effects associated with construction of and/or discharges to any public trust or cultural resources.

Response: The proposed project will comply with applicable CFR and HAR regulations as stated by the State DOH Wastewater Branch. MANA will also coordinate with the Wastewater Branch to ensure that appropriate design considerations are addressed with respect to construction and discharges.

DLNR – They provided references to the National Flood Insurance Program and Flood Hazard Zone that are required and provided information regarding water demands and water supply. They also provided information on and mitigation measures to protect waterbirds and the Hawaiian hoary bat. They are also concerned about potential impacts to the coastal ecosystem in Kahului and potential pollution impacts to the near shore waters offshore.

Response: The project developer will coordinate with the County of Maui Planning Department regarding design standards in the flood prone areas and will coordinate with the County DWS for its domestic water requirements. The mitigation measures noted for waterbirds and the Hawaiian hoary bat are included in the Draft EIS and will be implemented during construction. Potential impacts to the coastal ecosystem in Kahului, potential pollution impacts to the nearshore waters offshore, and applicable mitigation measures are discussed in the Draft EIS.

DLNR Office of Conservation and Coastal Lands – They noted that both a Conservation District Use Application and Management Plan are required for BLNR review. They also noted that an environmental document is required, with the County of Maui as the Accepting Authority. No public hearing is required. They stated that Hawaii's Coastal Zone Management law and Special Management Area rules apply.

Response: MANA will submit a CDUA and Management Plan for BLNR review and approval. The Draft EIS discusses CZM and SMA parameters and MANA will submit a SMA Use Permit application at the appropriate time.

DLNR State Historic Preservation Division – They noted that an archaeological inventory survey shall be reviewed and accepted by the division prior to initiation of project related work.

Response: MANA understands the request and consulted with the SHPD for clarification. After further discussion, the SHPD representative noted that an archaeological inventory survey is not required and an archaeological monitoring plan is instead required for the project.

DOT – They are concerned with the project's proximity to the airport runways and referenced adherence to a technical assistance memorandum and FAA regulations.

They are concerned about odor and fugitive dust and any activity that has the potential to attract wildlife or impact traffic circulation.

Response: The proposed project will conform with applicable FAA and State regulations, including the referenced technical assistance memorandum. The Draft EIS identifies odor, fugitive dust, wildlife, and traffic impacts and applicable proposed mitigation measures.

COUNTY OF MAUI

Planning Department – They stated that they are in favor of the project and the project will require a SMA application.

Response: An SMA Use Permit application will be filed after the Draft EIS process is completed.

ELECTED OFFICIALS

Representative Justin Woodson – He asked about any public nuisance issues, gas or odor catchment systems, and explosion risks or safety hazards.

Response: The Draft EIS will identify impacts to the environment and public and corresponding applicable proposed mitigation measures. The current regulatory permitting process and National Design Standards will be followed and all required odor catchment, controls and monitoring systems to address gas, odor, explosion, and safety hazards will be installed to ensure public safety and minimize any potential public nuisances.

Council member Alika Atay – He expressed a need for community involvement with an educational agricultural approach. He would like to engage the local community on sustainable practices and the "Made on Maui" renewable energy source.

Response: The EIS process includes a significant public involvement component, as will the CDUP and SMA processes. The project will include a community outreach component to promote active, sustainable agriculture, renewable energy, and the benefits of public/private partnerships.

OTHER CONSULTED PARTIES

Maui Tomorrow – They expressed concern about building in the WKWWRF as it is proximate to the Pacific Ocean and they feel the proposed facility should be relocated outside of the tsunami inundation zone. They also are concerned about the water supply for irrigation of the energy feedstock crop and project cost. They also expressed irregularities in the publication notice and questioned the reduction in carbon footprint of the facility. They wanted to see a thorough alternatives analysis.

Response: The Draft EIS addresses the natural hazard risks associated with the project and corresponding mitigation measures including constructing to the County of Maui design standards in flood areas. The Draft EIS also addresses the water supply for the crops and mitigation measures to efficiently utilize the water required. The irregularities noted were resolved and both a carbon footprint and alternatives analysis are included in the Draft EIS.

Sierra Club Maui – They were concerned about air and odor emissions, project disposition if the WKWWRF is relocated, visual impacts, disposition of the digestate, properties of the dried sludge, and noise or other industrial impacts. They questioned the reduction in carbon footprint of the facility. They wanted to see a thorough alternatives analysis.

Response: The Draft EIS will identify impacts to the environment, including odor, air, noise, and visual characteristics of the project and contains applicable proposed mitigation measures. Should the WKWWRF be relocated, the project developer will engage in discussions with the County of Maui on the project's disposition. The digestate will be applied on the lands where the energy feedstock crops are grown. The dried sludge will be in granules that are greater than 90% solids. Both a carbon footprint and alternatives analysis are included in the Draft EIS.

Chapter 12: References

County of Maui

2017 County of Maui website, http://www.mauicounty.gov.

County of Maui, Office of Economic Development

2017 Maui County Data Book 2016.

Federal Emergency Management Agency

2017 FEMA, National Flood Insurance Rate Program website, http://fema.maps.arcgis.com/apps/webappviewer/index.html?id=49069b91c14a411fa8defccf5c1f6266.

Fredericksen, Erik M.

2007 *A general archaeological monitoring plan for the scheduled tsunami improvements project at the county of Maui wastewater treatment plant at Kanaha, Wailuku Ahupua'a, Wailuku district, Maui island (tmk☹2) 3-8-001: 188)*. Prepared on behalf of County of Maui, Wastewater Reclamation Division, Wailuku, Maui. Prepared by Xamanek Researches LLC, Pukalani, Maui.

Fredericksen, Erik M. and Jennifer J. Frey

2012 *An archaeological assessment report for an approximately 1-acre portion of land for the Wailuku-Kahului wastewater reclamation facility shoreline protection extension, Wailuku Ahupua'a, Wailuku district, island of Mauitmk: (2) 3-8-001: Portion of 188*. Prepared on behalf of County of Maui, Wastewater Reclamation Division, Wailuku, Maui. Prepared by Xamanek Researches LLC, Pukalani, Maui.

Fredericksen, Erik M.

2015 *Archaeological monitoring report - Kahului wastewater reclamation facility shoreline protection extension, Wailuku Ahupua'a, Wailuku district, island of Mauitmk: (2) 3-8-001: 188 (por.), county job no: 08-08*. Prepared on behalf of County of Maui, Wastewater Reclamation Division, Wailuku, Maui. Prepared by Xamanek Researches LLC, Pukalani, Maui.

Hawaii Revised Statutes

2017 Hawaii Legislature website, http://www.capitol.hawaii.gov/docs/HRS.htm.

Hawaii State Department of Education

2017 State DOE website, http://www.hawaiipublicschools.org/ConnectWithUs/MediaRoom/PressReleases/Pages/HIDOEEnrollment1617.aspx.

Hobdy, Robert W.
2017 *Biological survey and assessment – renewable energy conversion and sludge processing facility at the Wailuku-Kahului wastewater treatment facility, Kahului Maui*, Kokomo, Maui.

MANA
2017 *Cultural assessment – renewable energy conversion and sludge processing facility at the Wailuku-Kahului wastewater treatment facility, Kahului Maui*, Kapolei, Hawaii.

Maui County Code
2017 Maui County Council website, https://library.municode.com/hi/county_of_maui/codes/code_of_ordinances.

Maui Electric Company, Ltd.
2017 MECO website, https://www.mauielectric.com/.

Munekiyo & Hiraga, Inc.
2013 *Final environmental impact statement – proposed shoreline protection extension at Wailuku-Kahului wastewater treatment facility.*

National Renewable Energy Laboratory
2017 National Renewable Energy Laboratory website, https://www.nrel.gov/.

National Weather Service
2017 Pacific Tsunami Warning Center website, http://ptwc.weather.gov/.

Renewable Energy World Magazine
2017 Renewable Energy World Magazine, http://www.renewableenergyworld.com/bioenergy/tech/biofuels.html.

State of Hawaii, Department of Business, Economic Development, and Tourism
2017 DBEDT website, http://dbedt.hawaii.gov/economic/.

State of Hawaii, Department of Transportation
2017 State DOT website, http:// http://hidot.hawaii.gov/.

State of Hawaii, Office of Environmental Quality Control
2017 OEQC website, http://health.hawaii.gov/oeqc/.

State of Hawaii, Office of Planning
2017 Office of Planning website, http://planning.hawaii.gov/gis/various-maps/.

Trinity Consultants

2017 *Air quality, odor, and climate change impact assessment – renewable energy conversion and sludge processing facility at the Wailuku-Kahului wastewater treatment facility, Kahului Maui*, Sacramento, California.

United States Department of Agriculture

2017 USDA website, https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/hawaii/islandsHI1972/Five_islands_SS.pdf.

United States Fish & Wildlife Service

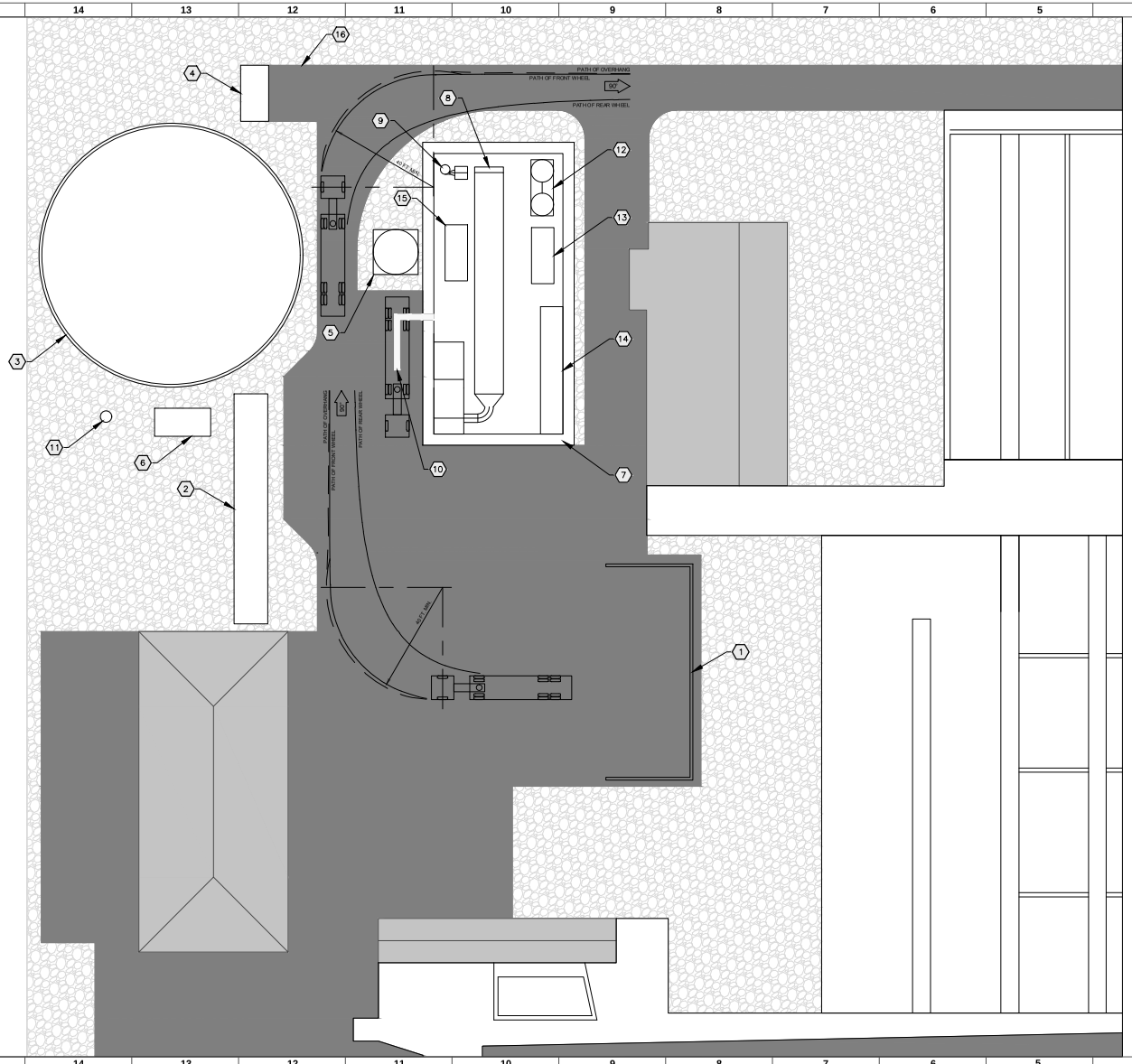
2017 USF&WL website, https://www.fws.gov/wetlands/.

United States Geological Survey

2017 USGS website, https://pubs.usgs.gov/of/2007/1089/.

Appendix A:

Preliminary Design Drawings (G1-G5)



PROPERTY INFORMATION

ADDRESS:
163-513 AMALA PL
KAHULUI, HI 96732

KEYNOTES

1. ENERGY CROP RECEPTION AREA
2. ENERGY CROP FEEDER
3. DIGESTER WITH MEMBRANE COVER
4. BIOSOLIDS RECEPTION BIN
5. BIOSOLIDS STORAGE SILO
6. DIGESTER EQUIPMENT CONTAINER
7. ELEVATED PLATFORM
8. BIOSOLIDS DRYER
9. PELLET COOLER
10. DRY SOLIDS LOADOUT
11. BIOGAS EMERGENCY FLARE
12. BIOGAS SCRUBBER VESSELS
13. BIOGAS DRYING AND COMPRESSION
14. BIOGAS ENGINE GENERATOR
15. ODOR CONTROL SYSTEM
16. INCLINED RAMP (PAVED)

THIS DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL DESIGN AND APPROVAL.

GRAPHIC SCALE
20' 0 20' 40'

REV NUM	DESCRIPTION	DRWN BY	CHK'D BY	DATE
00	ISSUED FOR REVIEW	AB	AD	03/24/17

ATTENTION:
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" @ 22x34 or ½" @11x17, THEN DRAWING IS NOT TO SCALE - SCALE ACCORDINGLY

Anaergia
Breaking Barriers to Sustainability

DESIGNED:	A DALE
DRAWN:	A BELTRAN
CHECKED:	
APPROVED:	
REFERENCE#:	
PROJECT NO.:	
SCALE:	1"=20'

KAHULUI AD FACILITY

SITE PLAN

DRAWING NUMBER
G-1
REV 00

PRELIMINARY - NOT FOR CONSTRUCTION
11/27/2017
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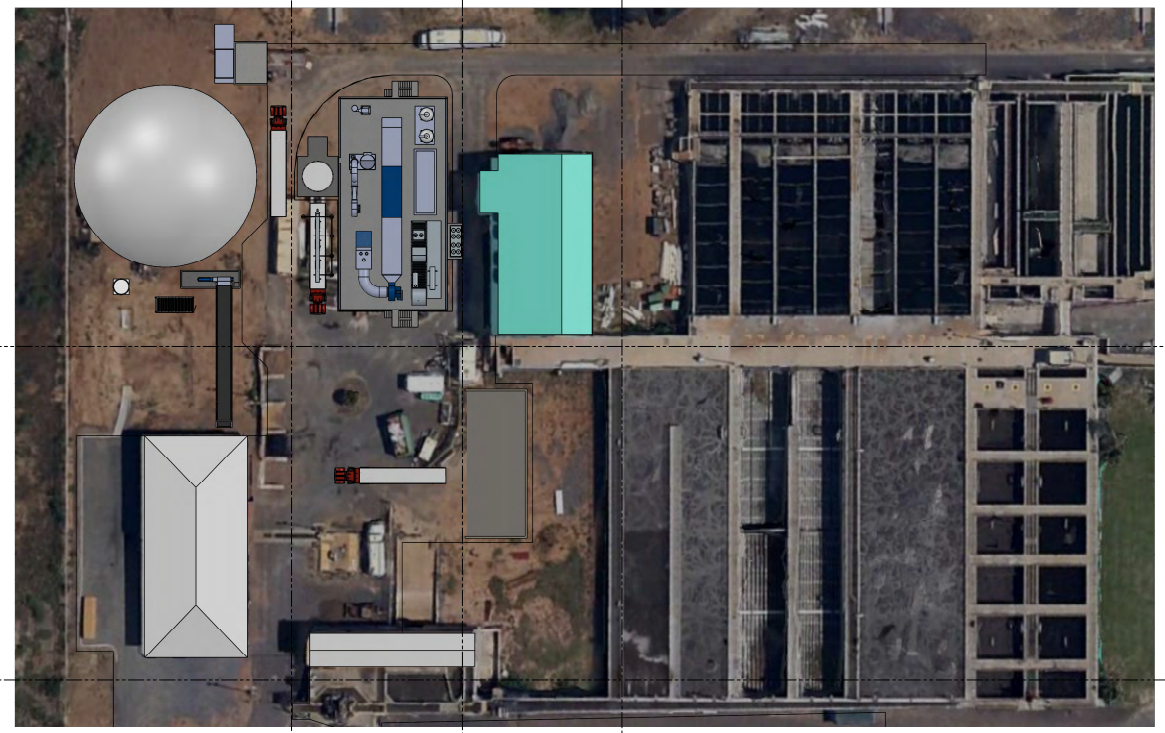
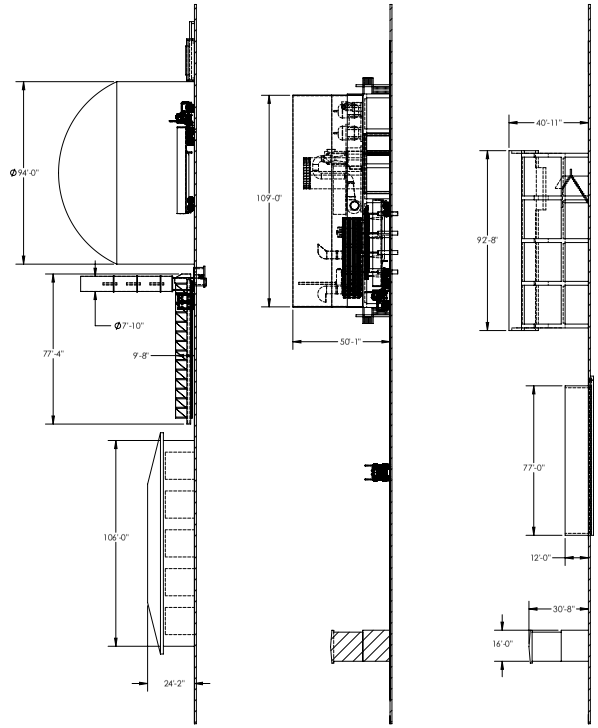
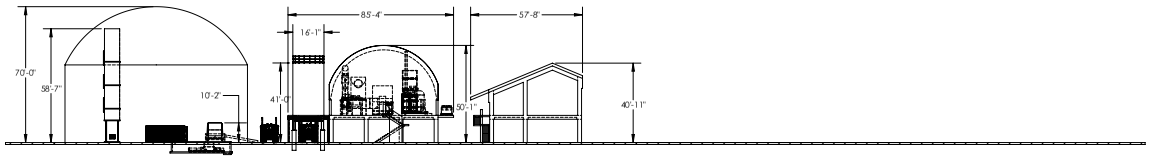




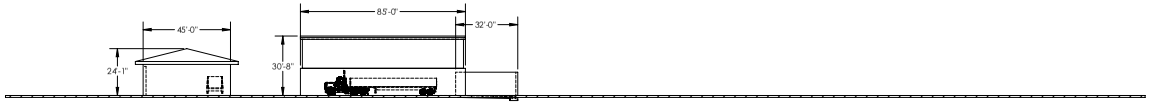
SECTION A-A

SECTION B-B

SECTION C-C



SECTION D-D



SECTION E-E

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ATTENTION:
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IF THIS BAR DOES NOT MEASURE 1" @ 22x34 or ½" @ 11x17, THEN DRAWING IS NOT TO SCALE - SCALE ACCORDINGLY

Anaergia
Breaking Barriers to Sustainability

DESIGNED:	
DRAWN:	A. BELTRAN
CHECKED:	A. DALE
APPROVED:	
REFERENCE#:	
PROJECT NO.:	
SCALE:	1:384

KAHULUI AD FACILITY

ELEVATION VIEWS

DRAWING NUMBER
G-2
REV
00

PRELIMINARY - NOT FOR CONSTRUCTION

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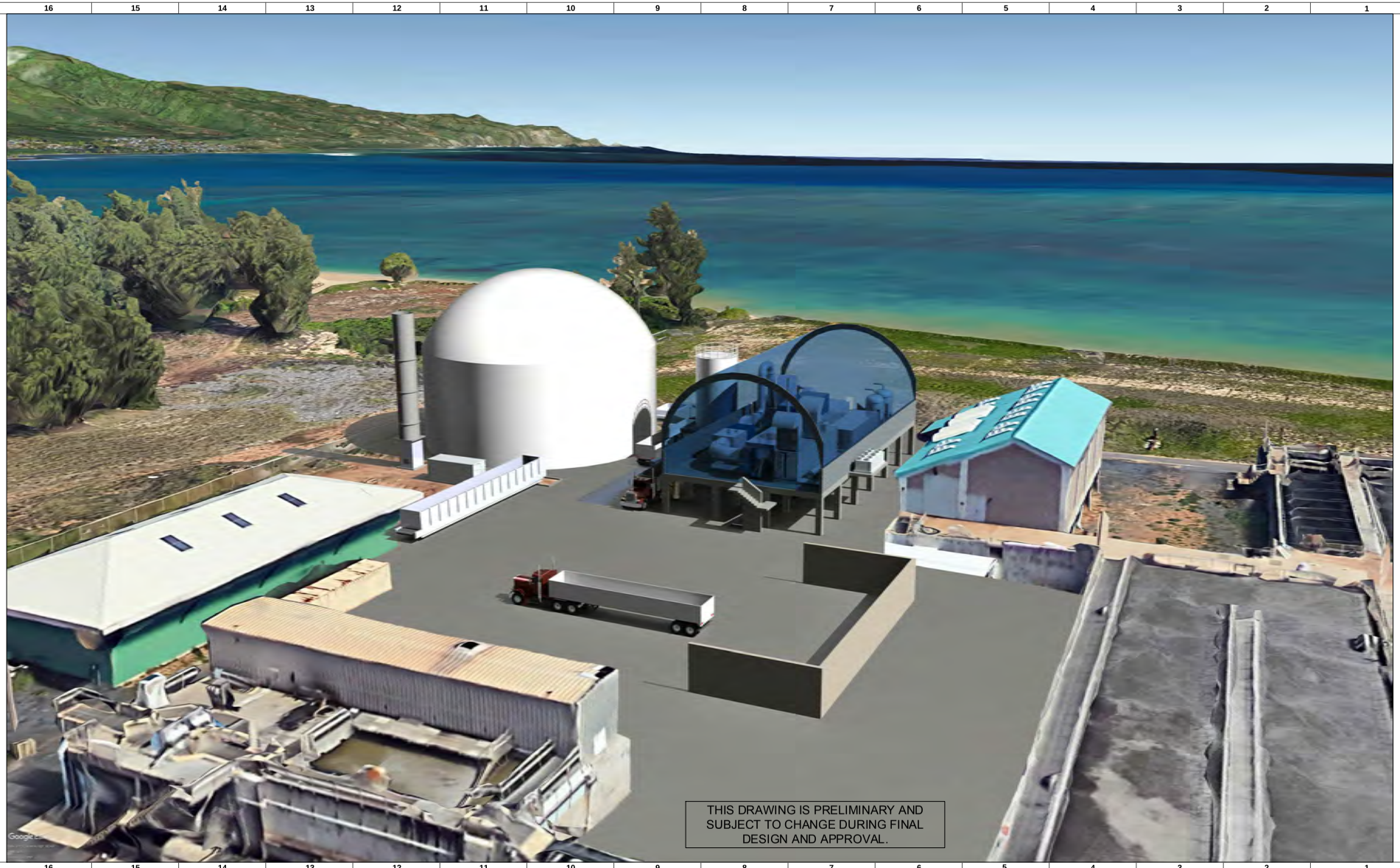
8/24/2017



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11/27/2017

REV NUM	DESCRIPTION	DRWN BY	CHK'D BY	DATE

ATTENTION:
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IF THIS BAR DOES NOT MEASURE 1" @ 22x34 or ½" @11x17, THEN DRAWING IS NOT TO SCALE - SCALE ACCORDINGLY

Anaergia
Breaking Barriers to Sustainability

DESIGNED:	A DALE
DRAWN:	A BELTRAN
CHECKED:	
APPROVED:	
REFERENCE#:	
PROJECT NO.:	
SCALE:	NONE

KAHULUI AD FACILITY

SITE RENDERING - SHEET 1

DRAWING NUMBER
G-3
REV

THIS DRAWING IS PRELIMINARY AND SUBJECT TO CHANGE DURING FINAL DESIGN AND APPROVAL.

PRELIMINARY - NOT FOR CONSTRUCTION
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11/27/2017

REV NUM	DESCRIPTION	DRWN BY	CHK'D BY	DATE

ATTENTION: 0 1/2 1
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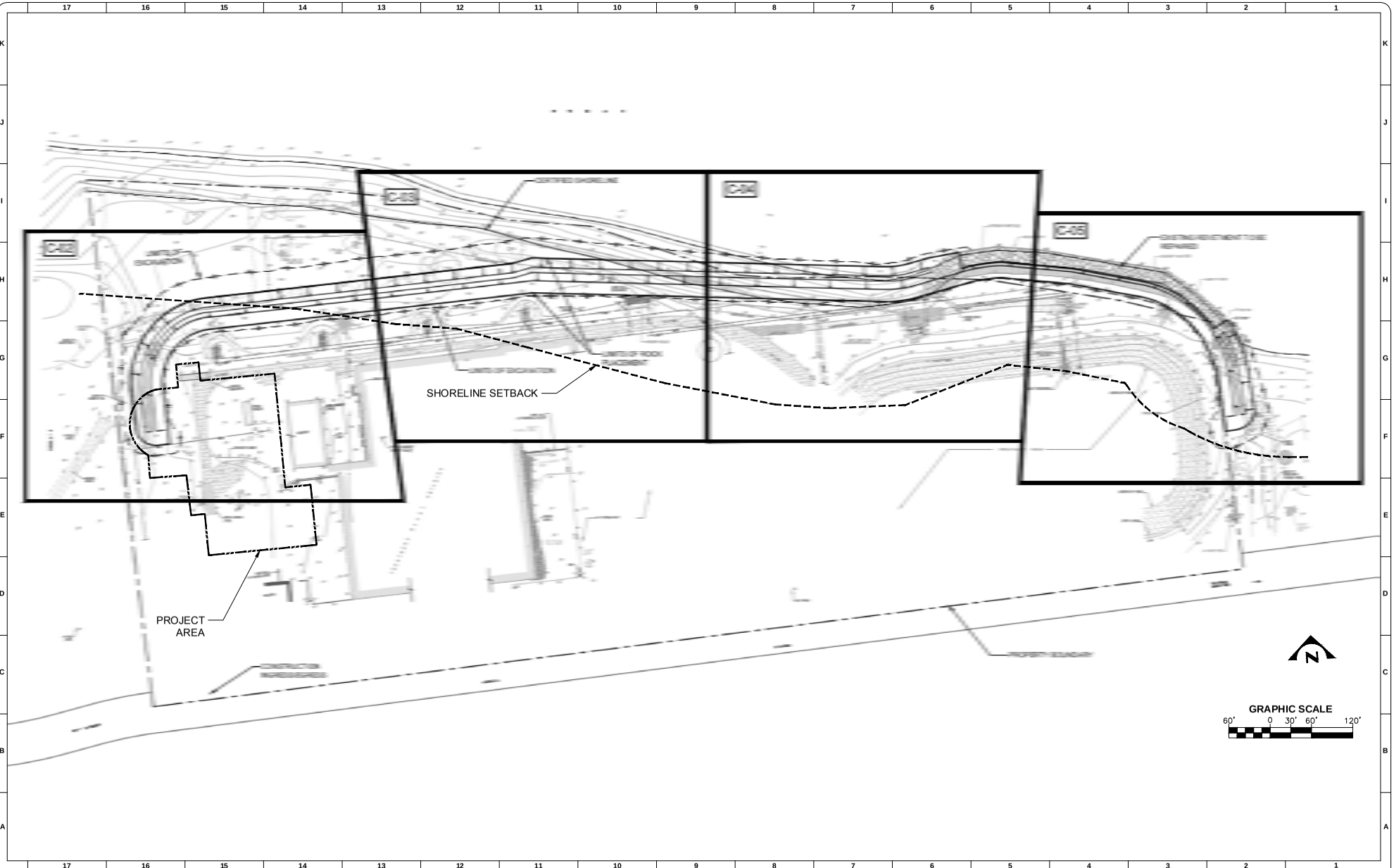
Anaergia
Breaking Barriers to Sustainability

DESIGNED:	A DALE
DRAWN:	A BELTRAN
CHECKED:	
APPROVED:	
REFERENCE#:	
PROJECT NO.:	
SCALE:	NONE

KAHULUI AD FACILITY

SITE RENDERING - SHEET 2

DRAWING NUMBER
G-4
REV



PRELIMINARY - NOT FOR CONSTRUCTION

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12/8/2017

REV NUM	DESCRIPTION	DRWN BY	CHK'D BY	DATE

ATTENTION:
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IF THIS BAR DOES NOT MEASURE 1" @ 22x34 or ½" @ 11x17, THEN DRAWING IS NOT TO SCALE - SCALE ACCORDINGLY

Anaergia
Breaking Barriers to Sustainability

EngStmp

DESIGNED:	
DRAWN:	A. BELTRAN
CHECKED:	
APPROVED:	
REFERENCE#:	
PROJECT NO.:	
SCALE:	1"=60'

KAHULUI AD FACILITY

SITE PLAN - TOPOGRAPHIC OVERLAY

DRAWING NUMBER
G-5
REV

Appendix B:

Letters Signifying EIS Accepting Authority

Executive Order No. 3096

Setting Aside Land for Public Purposes

By this Executive Order, I, the undersigned, Governor of the State of Hawaii, by virtue of the authority in me vested by Section 171-11, Hawaii Revised Statutes, and every other authority me hereunto enabling, do hereby order that the public land hereinafter described be, and the same is, hereby set aside for the following public purposes:

FOR SEWAGE TREATMENT PLANT PURPOSES, to be under the control and management of the County of Maui, Department of Public Works, and being designated the Wastewater Treatment Plant Site, containing an area of 18.755 acres, more or less, and Easement 10, containing an area of 8,666 square feet, more or less, situate at Kahului, Wailuku, Maui, Hawaii, said land being more particularly described in Exhibit "A" and delineated on Exhibit "B", both of which are attached hereto and made parts hereof, said exhibits being respectively, a survey description and survey map prepared by the Survey Division, Department of Accounting and General Services, State of Hawaii, both being designated C.S.F. No. 18,099 and dated April 26, 1978.

SUBJECT, HOWEVER, to the following:

1. Unrestricted access to the easement area by members of the staff of the Department of Land and Natural Resources and the Department of Transportation.

2. Disapproval by the legislature by two-thirds vote of either the Senate or the House of Representatives or by majority vote of both, in any regular or special session next following the date of this Executive Order.

In Witness Whereof, I have hereunto set my hand and caused the Great Seal of the State of Hawaii to be affixed.

Done at the Capitol at Honolulu this 9th day of April, Nineteen Hundred and 80.

George R. Ariyoshi

Governor of the State of Hawaii

Approved as to form:

Deputy Attorney General

Dated: MAR 6 1980

State of Hawaii

Office of the Lieutenant Governor

3006

This is to Certify That the within is a true copy of Executive Order No..... setting aside land for public purposes, the original of which is on file in this office.

In Testimony Whereof, the Lieutenant Governor of the State of Hawaii, has hereunto subscribed his name and caused the Great Seal of the State to be affixed.

DONE in Honolulu, this ..... day of ....., A.D. 19.....

Executive Order No. 3006

Setting Aside Land for Public Purposes

Land .....

.....

Purpose .....

.....

Date .....

STATE OF HAWAII
SURVEY DIVISION
DEPT. OF ACCOUNTING AND GENERAL SERVICES
HONOLULU

S.P. No. 18;099

April 26, 1978

WASTEWATER TREATMENT PLANT SITE
AND
EASEMENT 10

Kahului, Wailuku, Maui, Hawaii

Being a portion of Grant 3343 to Claus Spreckels conveyed as follows:

(a) Portion of Parcel 1 of the former Naval Air Station at Kahului, conveyed to the Territory of Hawaii by the United States of America by Quitclaim Deed dated December 10, 1956, recorded in Liber 4250, Page 299 and modified by instrument dated August 11, 1965 (Land Office Deeds 16432 and S-18727).

(b) Quitclaim Deed dated November 7, 1968, releasing Easement 2 reserved for railroad purposes, from Alexander and Baldwin, Inc., successor to Hawaiian Commercial and Sugar Co., Ltd. to the State of Hawaii, recorded in Liber 6301, Page 402 (Land Office Deed S-24630).

WASTEWATER TREATMENT PLANT SITE:

Beginning at the southwest corner of this parcel of land, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU NENE" being 1257.74 feet South and 21,111.97 feet West, thence running by azimuths measured clockwise from True South:-

1. 172° 47' 39" 725.01 feet along the remainder of Parcel A, Kahului Airport (Governor's Executive Order 2427);

Thence along highwater mark at seashore as of November 22, 1977, for the next eleven (11) courses, the direct azimuths and distances between points along said highwater mark at seashore being:

2. 272° 00' 60.52 feet;

3. 272° 25' 240.00 feet;

4. 275° 21' 156.00 feet;

5. 283° 03' 123.00 feet;

6. 274° 17' 113.00 feet;

EXHIBIT "A"

7.	288°	26'	210.00	feet;
8.	274°	07'	61.00	feet;
9.	269°	06'	125.00	feet;
10.	271°	24'	154.00	feet;
11.	278°	50'	184.00	feet;
12.	283°	14'	131.00	feet;
13.	352°	47' 39"	340.00	feet along the remainder of Parcel A, Kahului Airport (Governor's Executive Order 2427);
14.	82°	47' 39"	1500.00	feet along the remainder of Parcel A, Kahului Airport (Governor's Executive Order 2427) to the point of beginning and containing an AREA OF 18.755 ACRES.

EASEMENT 10: Non-exclusive easement (15-feet wide) for wastewater force mains.

Beginning at the northwest corner of this easement, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU NENE" being 1336.30 feet South and 21,515.95 feet West, thence running by azimuths measured clockwise from True South:-

1.	262°	44' 09"	532.24	feet along the remainder of Parcel A, Kahului Airport (Governor's Executive Order 2427);
2.	172°	44' 09"	26.73	feet along the remainder of Parcel A, Kahului Airport (Governor's Executive Order 2427);
3.	262°	47' 39"	15.00	feet along the Wastewater Treatment Plant Site;
4.	352°	44' 09"	41.72	feet along the remainder of Parcel A, Kahului Airport (Governor's Executive Order 2427);
5.	82°	44' 09"	554.48	feet along the remainder of Parcel A, Kahului Airport (Governor's Executive Order 2427);

C.S.F. No. 18,099

April 26, 1978

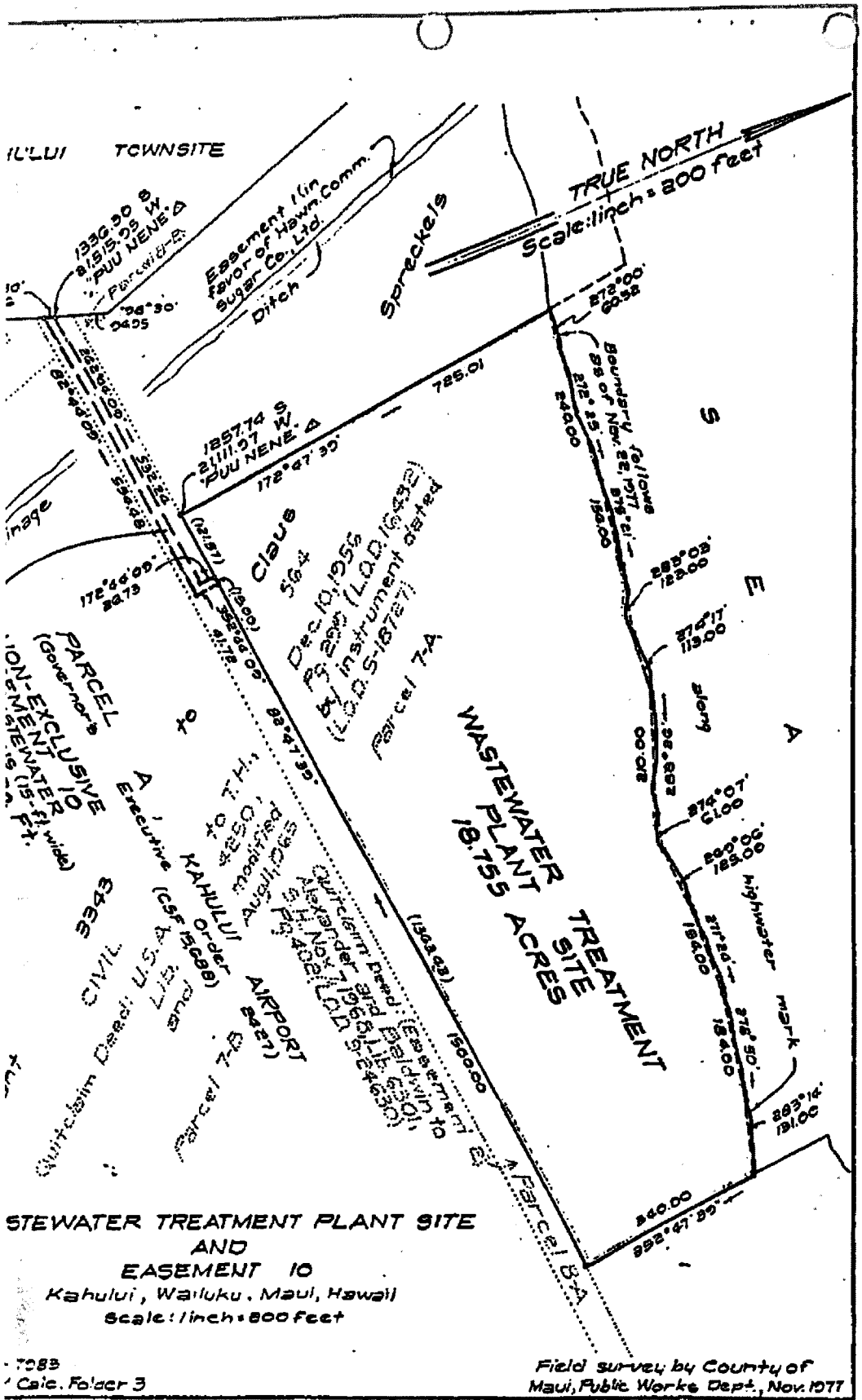
6. 198° 30' 16.66 feet along the remainder of Grant 3343 to Claus Spreckels to the point of beginning and containing an AREA OF 8,666 SQUARE FEET.

SURVEY DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

By: James Chrystal Jr
James Chrystal, Jr.
Land Surveyor

Compiled from maps by Wright-Harvey & Wright dated Jan. 29, 1972, Reg. Map 4132 and Govt. Survey Records.

fb



STEWATER TREATMENT PLANT SITE AND EASEMENT 10

Kahului, Wailuku, Maui, Hawaii

Scale: 1 inch = 800 feet

7083

Calc. Folder 3

Field survey by County of Maui, Public Works Dept., Nov. 1977

3-8-01

SURVEY DIVISION
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
STATE OF HAWAII

EXHIBIT "B"

J.M.M. Apr. 26, 1978

ALAN M. ARAKAWA
Mayor

STEWART STANT
Director

MICHAEL MIYAMOTO
Deputy Director

MICHAEL RATTE
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

August 11, 2017

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl St., Room 131
Honolulu, Hawaii 96809

SUBJECT: Request for concurrence with designation of the County of Maui as the Approving/Accepting Authority for an Environmental Impact Statement related to a project for production of renewable electrical energy and provision of sludge drying services to be located at the Wailuku-Kahului Wastewater Reclamation Facility, 281 Amala Place, Kahului, Maui, TMK: (2)3-8-001:188

Dear Mr. Lemmo,

Executive Order No. 3006, attached for your reference, grants the County of Maui ("County") management and control of the property identified above for purposes of operating the Wailuku-Kahului Wastewater Reclamation Facility (WKWRF) in Kahului.

The County's Department of Environmental Management published a request for proposals in early 2016 soliciting projects to supply electrical energy to power the operations of the WKWRF and further provide drying services for the municipal wastewater sludge on the island of Maui ("Project"). In furtherance of the State and County's goals to achieve and incorporate 100% renewable energy, preference was given to projects that would generate such renewable energy.

The County selected Maui All Natural Alternative ("MANA") at the conclusion of the procurement process. MANA proposes to install an anaerobic digester and associated appurtenances onsite, which will digest energy crops grown on former Hawaiian Commercial & Sugar (HC&S) plantation lands. The primary product of this digestion process is a renewable natural biogas that will be refined on site and used to fuel a combined heat and power (CHP) engine to generate sufficient electrical energy to power the WKWRF operations. Waste heat from the CHP combined with biogas fuel will provide the required heat for sludge drying. The Project is not designed to export electrical energy to the Maui Electric Company grid. MANA

will own and operate the equipment related to the Project; the County will purchase the electrical energy and sludge drying services from MANA.

We respectfully request clarification that the proposed Project is ancillary to the WWRF and within the scope of Executive Order No. 3006. We additionally request your concurrence that the County of Maui, though its Department of Environmental Management ("DEM"), is the Accepting/Approving Authority pursuant to Chapter 343, Hawaii Revised Statutes (HRS) and Chapter 200 of Title 11, Department of Health, Hawaii Administrative Rules (HAR).

DEM has determined that the Project will require an Environmental Impact Statement. The Environmental Impact Statement Preparation Notice ("EISPN") was published June 23, 2017. The WKWRF is located within the State Land Use Conservation District, Limited subzone; therefore, the Project also will require a Conservation District Use Permit ("CDUP").

In June 2016, the County separately requested that the Department of Land and Natural Resources approve a modification of the Executive Order to authorize the County to lease an approximate one-acre portion of the WWRF to MANA for siting of the Project. The County understands that an EIS is required in advance of DLNR's consideration of such request, as well as consideration of the CDUP.

Should you have any questions regarding this correspondence, please do not hesitate to contact me at (808) 270-8230 or by email to Stewart.Stant@co.maui.hi.us.

Sincerely,

STEWART STANT
Director

Attachment
CC: Maui District Branch, DLNR

DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF: OCCL: AJR

COR: MA-18-43

SEP 14 2017

DEM	INFO	ACTION
DIRECTOR		
DEPUTY		
PERS		
WWR		
SW		
EP&S		
SECTY		
Richelle - Corp. Cons.		

Stewart Stant, Director
County of Maui
Department of Environmental Management
2050 Main Street, Ste. 2B
Wailuku, HI 96793

SUBJECT: PROPOSED RENEWABLE ELECTRICAL ENERGY FOR THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY
Wailuku District, Island of Maui
TMK: (2) 3-8-001:188

Dear Mr. Stant,

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your letter requesting concurrence with designation of the County of Maui as the Accepting Authority for an Environmental Impact Statement (EIS) being prepared for the subject project. For reference, the project area (i.e., project parcel) is located entirely within the State Land Use (SLU) Conservation District, *Limited* Subzone.

According to the information provided, the County of Maui is proposing to install an anaerobic digester and associated appurtenances on-site, which will "digest" energy crops grown nearby to produce a renewable natural bio-gas. The bio-gas will be refined on site and used to fuel a combined heat and power engine to generate sufficient energy to power the *Wailuku-Kahalui Wastewater Recelamation Facility*. It was stated that the project is not designed to export electrical energy to the Maui electrical grid, all power generated will be used on site.

- The construction of a renewable bio-gas facility for power generation is considered an identified land use pursuant to Hawaii Administrative Rules (HAR) §13-5-22, P-12 POWER GENERATION FROM RENEWABLE RESOURCES (D-1) *Hydroelectric, wind generation, ocean thermal energy conversion, wave, solar, geothermal, biomass, and other renewable power generation facilities from natural resources; includes generation, conversion, and transmission facilities and access roads. Renewable energy projects shall minimize impacts to natural, cultural, and recreational resources, and shall be expedited in the application review and decision-making process. A management plan approved simultaneously with the permit, is also required.* In order to apply for this use, the applicant

will be required to submit to this office a completed Conservation District Use Application (CDUA) and all associated documents for review and processing. Please be informed that the final decision to approve or deny this application rests with the Board of Land and Natural Resources;

- The applicant will be required to submit a Management Plan, pursuant to ***HAR §13-5, Exhibit 3*** as part of the CDUA;

- In conformance with §343, Hawaii Revised Statutes (HRS), as amended, and HAR, §11-200-8, this proposed project will require the filing of an environmental document;

- The OCCL concurs that the *County of Maui* will be the accepting authority for the proposed environmental document;

- Pursuant to HAR §13-5-40 *Hearings*, a public hearing will not be required; and

- Please be informed that, the applicant's responsibility includes complying with the provisions of Hawaii's Coastal Zone Management law (Chapter 205A, Hawaii Revised Statures) that pertain to the Special Management Area (SMA) requirements administered by the various counties. Negative action by the Chair of the BLNR on this application can be expected should you fail to obtain and provide us, at least thirty (30) days prior to Chairpersons action, one of the following from the appropriate county:

    1. An official determination that the proposal is exempt from the provisions of the county rules relating to the SMA;

    2. An official determination that the proposed development is outside the SMA; or

    3. An SMA Use Permit for the proposed development.

If you have any questions regarding this letter, please contact Alex J. Roy, M.Sc. of our Conservation and Coastal Lands staff at 808-587-0316 ~~or via email at~~ alex.j.roy@hawaii.gov

Sincerely,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

CC: Chairperson
MDLO

ALAN M. ARAKAWA
MAYOR

KEITH A. REGAN
MANAGING DIRECTOR

OFFICE OF THE MAYOR

Ke'ena O Ka Meia
COUNTY OF MAUI – Kalana O Maui

October 27, 2017

Mr. Stewart Stant, Director
Department of Environmental Management
2050 Main St. Suite 2B
Wailuku, Hawaii 96793

SUBJECT: DESIGNATION OF EIS ACCEPTING AUTHORITY FOR PROPOSED RENEWABLE ELECTRICAL ENERGY PROJECT FOR THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY; TMK: (2) 3-8-001:188

Director Stant,

I have reviewed correspondence from the State Department of Land and Natural Resources, Office of Conservation and Coastal Lands (DLNR/OCCL) received September 14, 2017, which confirms the County of Maui is the Accepting Authority pursuant to Chapter 343, Hawaii Revised Statutes and Chapter 200 of Title 11, Department of Health, Hawaii Administrative Rules (HAR), for the Environmental Impact Statement (EIS) being prepared for the above-identified project.

Pursuant to Section 11-200-4, HAR, Environmental Impact Statement Rules, the Mayor or an authorized representative possesses the final authority to accept the EIS. I hereby designate the Director of the Department of Environmental Management as the authorized representative for processing and accepting the EIS for the subject project.

Sincerely,

Alan Arakawa

ALAN M. ARAKAWA
Mayor

Attachment: Letter from DLNR/OCCL

Appendix C:

Biological Survey and Assessment

BIOLOGICAL SURVEY AND ASSESSMENT

RENEWABLE ENERGY CONVERSION AND SLUDGE PROCESSING FACILITY

AT THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY

KAHULUI, MAUI

by

Robert W. Hobdy
Environmental Consultant
Kokomo, Maui
September 2017

Prepared for:
Maui All Natural Alternative LLC (MANA)

BOTANICAL AND FAUNA SURVEY
RENEWABLE ENERGY CONVERSION AND SLUDGE PROCESSING FACILITY
AT THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY
KAHULUI, MAUI

INTRODUCTION

The Renewable Energy Conversion and Sludge Processing Facility project is situated on approximately one acre of undeveloped land within the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) in Kahului, Maui, TMK (2) 3-8-01:188 (see Figure 1). This biological study inventories and assess the flora and fauna resources within the project area in fulfillment of environmental requirements of the planning process.

SITE DESCRIPTION

The project area lies at the West end of the 18.755 acre WKWWRF parcel which is seaward of Amala Place, adjacent to Kanahā Beach Park and to the east and above a sandy beach fronting the ocean. The area is already disturbed with some of the area paved and with a large mound of stockpiled sand. The soil in the entire area is characterized as Jaucus Sand, Saline (JcC) which is coastal dune land with unconsolidated calcareous sand (Foote et al, 1972). Vegetation consists of low growing salt-tolerant vines, grasses, herbaceous weeds and a few shrubs. Elevations are about 10 feet in the lee of an elevated 15 to 20 feet high coastal dune. Rainfall averages 22 to 25 inches per year with winter maximums (Armstrong, 1983).

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the Renewable Energy Conversion and Sludge Processing Facility project. The objectives of the survey were to:

1. Document what plant and animal species occur on the property or may likely occur in the existing habitat.

2. Document the status and abundance of each species.

3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.

4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used following routes to ensure that all parts of the project area were covered. Areas most likely to harbor native or rare plants were more intensively examined. Notes were made on plant species, distribution and abundance as well as terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation in the project area was adapted to a dry coastal environment with salty breezes and sandy soil. A total of 43 plant species were recorded during two site visits. Seven species were of common occurrence. They included: Bermuda grass (*Cynodon dactylon*), four-spike heliotrope (*Heliotropium procumbens*), pohuehue (*Ipomoea pes-caprae* subsp. *brasiliensis*), *Ipomoea obscura* no common name, kauna′oa (*Cuscuta sandwichiana*), creeping indigo (*Indigofera spicata*) and siratro (*Macroptilium artropurpureum*). The remaining thirty-six species were uncommon or rare.

Six native plant species were found in the project area, including kauna′oa which is endemic to Hawaii, and five others that are indigenous in Hawaii but are native in other Pacific islands as well: ′aki′aki (*Sporobolus virginicus*), kipukai (*Heliotropium curassavicum*), pohuehue, naupaka kahakai (*Scaevola taccada*) and ′uhaloa (*Waltheria indica*). All of these native plants are common throughout Hawaii.

DISCUSSION AND RECOMMENDATIONS

The vegetation in this small project area consists primarily of non-native species with a few common coastal native species scattered about. These are all widespread along the coasts throughout Hawaii. No federally listed Endangered or Threatened plant species (USFWS, 2017) were found in or around the project area, nor were any found that are candidates for such status. No special native plant habitats were found here either.

Because of the above existing conditions, there is little of botanical concern in the WKWWRF project area. The proposed construction work is not expected to have a significant negative impact on the botanical resources in this part of Maui. No recommendations are offered regarding the vegetation on this project.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within two groups: Monocots and Dicots. Taxonomy and nomenclature of the plants are in accordance with Wagner et al. (1999).

For each species, the following information is provided:

1. Scientific name with author citation.

2. Common English or Hawaiian name.

3. Bio-geographical status. The following symbols are used:

   endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.

   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

   Polynesian = those plants brought to the islands by the Polynesians in the course of their migrations.

   non-native = all those plants brought to the islands intentionally or accidentally after western contact.

4. Abundance of each species within the project area:

   abundant = forming a major part of the vegetation within the project area.

   common = widely scattered throughout the area or locally abundant within a portion of it.

   uncommon = scattered sparsely throughout the area or occurring in a few small patches.

   rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MONOCOTS			
CYPERACEAE (Sedge Family)			
Cyperus rotundus L.	nut sedge	non-native	rare
POACEAE (Grass Family)			
Cenchrus ciliaris L.	buffelgrass	non-native	uncommon
Cenchrus echinatus L.	common sandbur	non-native	uncommon
Chloris barbata (L.) Sw.	swollen fingergrass	non-native	uncommon
Cynodon dactylon (L.) Pers.	Bermuda grass	non-native	common
Megathyrsus maximus (Jacq.) Simon & Jacobs	Guinea grass	non-native	uncommon
Sporobolus virginicus (L.) Kunth	'aki'aki	indigenous	uncommon
DICOTS			
AMARANTHACEAE (Amaranth Family)			
Atriplex suberecta Verd.	saltbush	non-native	rare
ANACARDIACEAE (Mango Family)			
Schinus terebinthifolius Raddi	Christmas berry	non-native	rare
ASTERACEAE (Sunflower Family)			
Bidens pilosa L.	Spanish needle	non-native	rare
Conyza bonariensis (L.) Cronq.	hairy horseweed	non-native	rare
Emilia fosbergii Nicolson	red pualele	non-native	rare
Flaveria trinervia (Spreng.) C. Mohr	clustered yellowtops	non-native	rare
Pluchea carolinensis (Jacq.) G. Don	sourbush	non-native	rare
Sonchus oleraceus L.	pualele	non-native	rare
Tridax procumbens L.	coat buttons	non-native	uncommon
Verbesina encelioides (Cav.) Benth. & Hook.	golden crown-beard	non-native	uncommon
Xanthium strumarium L.	kīkania	non-native	rare
BORAGINACEAE (Borage Family)			
Heliotropium curassavicum L.	kīpūkai	indigenous	rare
Heliotropium procumbens Mill.	four-spike heliotrope	non-native	common
CASUARINACEAE (She-oak Family)			
Casuarina equisetifolia L.	common ironwood	non-native	uncommon
CONVOLVULACEAE (Morning Glory Family)			
Ipomoea obscura (L.) Ker-Gawl.	----------	non-native	common
Ipomoea pes-caprae subsp. *brasiliensis* (L.) Oostr.	pōhuehue	indigenous	common
Cuscuta sandwichiana Choisy	kauna'oa	endemic	common
EUPHORBIACEAE (Spurge Family)			
Euphorbia hirta L.	hairy spurge	non-native	uncommon
Euphorbia hypericifolia L.	graceful spurge	non-native	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
Ricinus communis L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
Canavalia sericea A. Gray	silky jackbean	non-native	rare
Desmanthus pernambucanus (L.) Thellung	slender mimosa	non-native	rare
Indigofera spicata Forssk.	creeping indigo	non-native	common
Leucaena leucocephala (Lam.) de Wit	koa haole	non-native	rare
Macroptilium atropupureum (DC)Urb.	siratro	non-native	common
Prosopis pallida (Humb. & Bonpl. ex Willd.) Kunth	kiawe	non-native	rare
GOODENIACEAE (Goodenia Family)			
Scaevola taccada (Gaertn.) Roxb.	naupaka kahakai	indigenous	rare
LAMIACEAE (Mint Family)			
Leonotis nepetifolia (L.) R. Br.	lion's ear	non-native	rare
MALVACEAE (Mallow Family)			
Abutilon grandifolium (Willd.) Sweet	hairy abutilon	non-native	rare
Malvastrum coromandelianum (L.) Garcke	false mallow	non-native	uncommon
Waltheria indica L.	'uhaloa	indigenous	uncommon
NYCTAGINACEAE (Four-o'clock Family)			
Boerhavia coccinea Mill.	scarlet spiderling	non-native	rare
PORTULACACEAE (Purslane Family)			
Portulaca oleracea L.	pigweed	non-native	rare
SOLANACEAE (Nightshade Family)			
Datura stramonium L.	Jimson weed	non-native	rare
Nicotiana glauca R.C. Graham	tree tobacco	non-native	rare
Solanum lycopersicum L.	cherry tomato	non-native	rare

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through fauna survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species, abundance, activities and location as well as observations of trails, tracks, scat and signs of feeding. In addition, an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Mammals are limited to smaller species that can get through or over the fence that surrounds this facility. Just one species was recorded during the survey during two site visits, the domestic cat (*Felis catus*), whose tracks were seen. Taxonomy and nomenclature follow Tomich (1986). Other species one might expect to be found in the project area include, mongoose (*Herpestes auropunctatus*), rats (*Rattus* spp.) and mice (*Mus domesticus*).

During the evening survey, a special effort was made to look for any occurrence of the endemic and Endangered ʻōpeʻapeʻa or Hawaiian hoary bat by looking for them visually at twilight and by using a bat detector (Batbox IIID) after dark at two locations, set to the frequency of 27,000 Hertz that these bats are known to use when echolocating for nocturnal flying insect prey. None of these bats were detected by either method following prolonged observation.

BIRDS

Just six species of non-native birds were recorded during two site visits to the project area. No doubt human activity and lack of habitat diversity contributed to this result. Taxonomy and nomenclature follow American Ornithologists' Union (2017). Four species were of common occurrence: common myna *(Acridotheres tristis*), zebra dove (*Geopelia striata*), cattle egret (*Bubulcus ibis*) and chicken (*Gallus gallus*). Less common were spotted dove (*Streptopelia chinensis*) and house sparrow (*Passer domesticus*).

This small project area lies about 600 feet to the west of the approximately 2 acre WKWWRF treated water storage pond that lies on the east end of this facility, and a similar distance to the north of the approximately 143 acre Kanahā Pond State Wildlife Sanctuary that lies across Amala Place. Both of these wetlands support a wide range of resident and migratory waterbirds, some of which are endangered species. Endangered birds include the ʻalae keʻokeʻo or Hawaiian coot (*Fulica alai*), the ae'o or black-necked stilt (*Himantopus mexicanus knudseni*), the koloa or Hawaiian duck (*Anas wyvilliana*) and the nēnē or Hawaiian goose (*Branta sandvicensis*). These species are not likely to come to the project area because it lacks habitat for feeding and breeding as well as being so close to excellent alternative wetland habitat suitable for their use.

INSECTS

Insect life was moderate in the project area. Eleven species were recorded during two site visits. Taxonomy and nomenclature follow Nishida et al (1992). Ten species were non-native in Hawaii and of no conservation interest or concern. The globe skimmer (*Pantala flavescens*) is a common indigenous dragonfly.

The endemic and Endangered Blackburn's sphynx moth (*Manduca blackburni*) (USFWS) was looked for but not found. One juvenile non-native tree tobacco plant (*Nicotiana glauca*), which is the primary host plant for this moth, was found growing on the stockpiled sand mound. This plant was examined but no moths or their eggs or larvae were found. While summer is not the time for egg laying or larval activity, this plant would have been too small for such activity during the winter and spring when such activity normally occurs.

AMPHIBIANS

One amphibian, the non-native giant Tropical American toad (*Rhinella marin*us) was found in the project area during the survey.

MOLLUSKS

A few shells of the non-native, giant East African snail (*Achatina fulica*) were found in leaf litter in the project area during the survey.

DISCUSSION AND RECOMMENDATIONS

The fauna survey of the project area identified one mammal, six birds, eleven insects, one amphibian and one mollusk. Of these, just one insect was a native species. This was the widespread and common indigenous globe skimmer dragonfly which is of no particular conservation concern. The non-native animal species are of no conservation concern.

While not detected during the survey, the Hawaiian bat has been documented from a wide range of habitats from sea level to high in the mountains, from wet forests, dry areas and even from lava flows. They are highly mobile and can move about seasonally and follow spikes in insect activity. It is possible that they could occasionally visit this project area. Their Endangered status would require certain protective measures to ensure that they would not be harassed or harmed if they show up. Since there are no trees in the project, however, there is no suitable habitat for any bats to rear their young here.

The Blackburn's sphinx moth, though not found during the survey, could also show up next year in association with the small tree tobacco host plant that was found in the project area. Reviewers for this document may comment on it and give guidelines on how to deal with the Blackburn's sphinx moth as the project moves forward.

No other concerns with fauna species are anticipated. This project is not likely to have a significant negative impact on native fauna resources in this part of Maui.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within five groups: Birds, Mammals, Insects, Amphibians and Mollusks. For each species the following information is provided:

1. Common name.
2. Scientific name.
3. Bio-geographical status. The following symbols are used:

   endemic = native only to Hawaii; not naturally occurring anywhere else in the world.

   indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

   non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.

   migratory = spending a portion of the year in Hawaii and a portion elsewhere. In Hawaii, the migratory birds are usually in the overwintering/non-breeding phase of their life cycle.

4. Abundance of each species within the project area:

   abundant = many flocks or individuals seen throughout the area at all times of day.

   common = a few flocks or well scattered individuals throughout the area.

   uncommon = only one flock or several individuals seen within the project area.

   rare = only one or two seen within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MAMMALS			
FELIDAE (Cat Family)			
Felis catus L.	domestic cat	non-native	rare
BIRDS			
STURNIDAE (Starling Family)			
Acridotheres tristis L.	common myna	non-native	common
PHASIANIDAE (Pheasant Family)			
Gallus gallus L.	common chicken	non-native	common
COLUMBIDAE (Dove Family)			
Geopelia striata L.	zebra dove	non-native	common
Streptopelia chinensis Scopoli	spotted dove	non-native	uncommon
ARDEIDAE (Heron Family)			
Bubulcus ibis L.	cattle egret	non-native	common
PASSERIDAE (Sparrow Family)			
Passer domesticus L.	house sparrow	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
INSECTS			
Order DIPTERA - flies			
MUSCIDAE (Housefly Family)			
Musca domestica L.	housefly	non-native	rare
Musca sorbens Wiedemann	dung fly	non-native	uncommon
Order HYMENOPTERA - bees, wasps, ants			
APIDAE (Honeybee Family)			
Apis mellifera L.	honeybee	non-native	uncommon
VESPIDAE (Vespid Wasp Family)			
Polistes aurifer Saussure	golden paper wasp	non-native	uncommon
Order LEPIDOPTERA - butterflies, moths			
HESPERIIDAE (Skipper Butterfly Family)			
Hylephila phyleus Drury	fiery skipper	non-native	rare
LYCAENIDAE (Gossamer-winged Butterfly Family)			
Brephidium exilis Boisduval	western pygmy blue	non-native	rare
Lampides boeticus L.	long-tailed blue	non-native	uncommon
NYMPHALIDAE (Brush-footed Butterfly Family)			
Danaus plexippus L.	monarch butterfly	non-native	uncommon
PAPILIONIDAE (Swallowtail Butterfly Family)			
Papilio xuthus L.	Asian swallowtail	non-native	rare
Order ODONATA - dragonflies, damselfies			
LIBELLULIDAE (Skimmer Dragonfly Family)			
Pantala flavescens Fabricius	globe skimmer	indigenous	rare
Order ORTHOPTERA - grasshoppers, crickets			
ACRIDIDAE (Grasshopper Family)			
*Oedaleus abruptus*Thunberg	short-horned grasshopper	non-native	uncommon

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
AMPHIBIANS			
BUFONIDAE (Toad Family)			
Rhinella marinus L.	giant Tropical American toad	non-native	rare
MOLLUSKS			
ACHATINIDAE (Achatinid Snail Family)			
Achatina fulica Ferussac	giant East African snail	non-native	uncommon

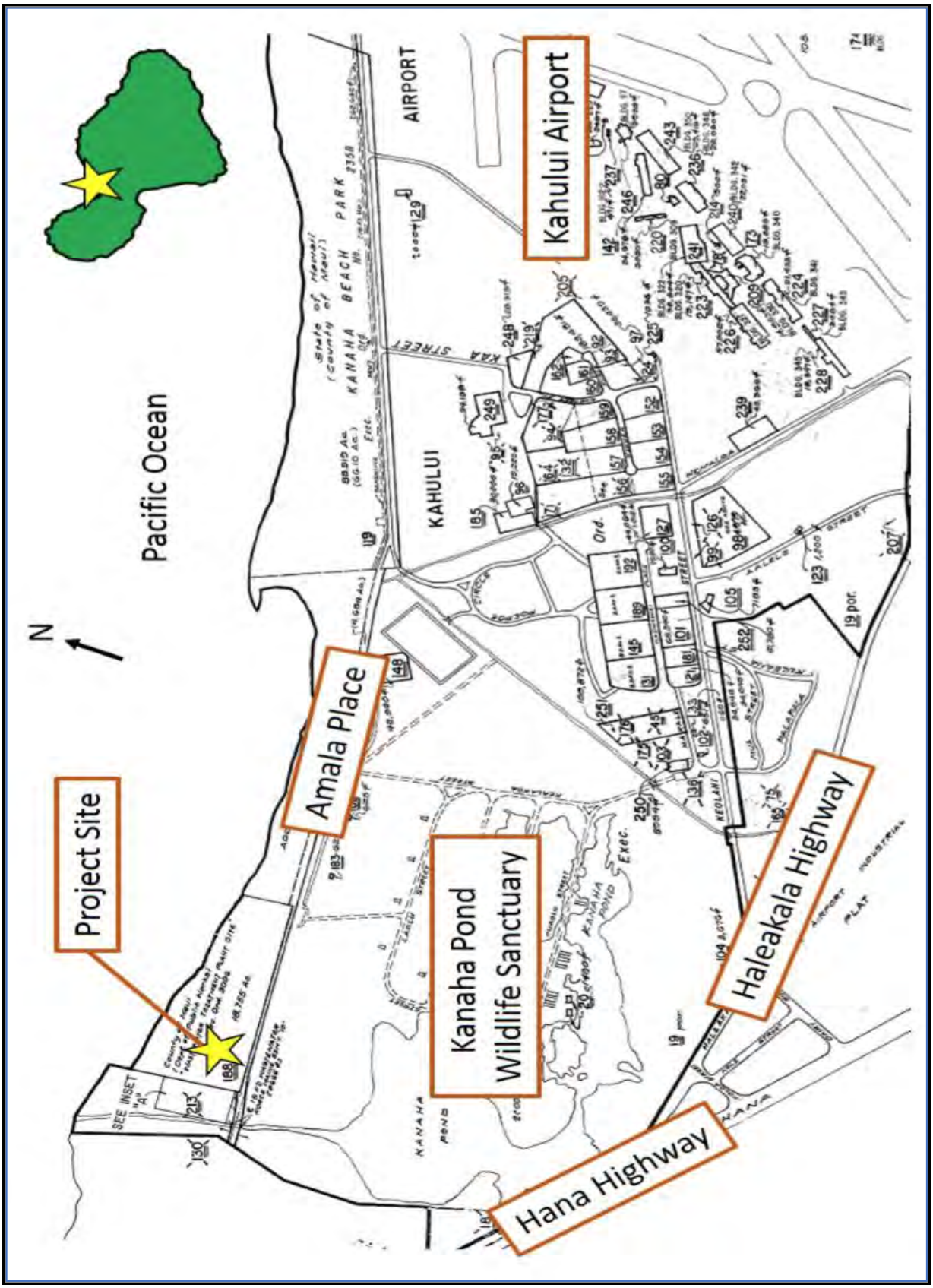


Figure 1. Project Location Map – Renewable Energy Conversion and Sludge Processing Facility

Figure 2. Renewable Energy Conversion and Sludge Processing Facility footprint within the Wailuku – Kahului Wastewater Reclamation Facility

Figure 3. View south across project area showing partially paved area and stored materials.

Figure 4. View southwest toward gravel access road and perimeter fence.

Figure 5. View north along the perimeter fence showing beach morning glory and kauna′oa vines.

Figure 6. View northwest toward perimeter fence, coastal dune and ocean.

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Appendix D:

Archaeological History

PREVIOUS ARCHAEOLOGICAL WORK ON WAILUKU KAHULUI WASTEWATER RECLAMATION FACILITY (WKWWRF) PARCEL

SUMMARY

The Wailuku Kahului Wastewater Reclamation Facility (WKWWRF) is located on a portion of land on Maui (TMK: (2) 3-8-001: Por. of 188; refer to Figures 1 and 2). This previously developed parcel contains the existing County of Maui wastewater reclamation facility, as well as buried utilities and a settling pond associated with the complex (Figure 3). Xamanek Researches LLC previously conducted an Archaeological Field Inspection of the *makai* (northwestern) portion of the parcel in 2007. Following the Field Inspection, an Archaeological Monitoring Plan (Fredericksen, 2007) was prepared for the scheduled Tsunami Remediation project and submitted to the State Historic Preservation Division (SHPD) in December 2007. This document was subsequently accepted by the SHPD in January 2008 (SHPD Doc No. 0801JP06).

Following a hiatus of several years, a targeted Archaeological Inventory Survey was conducted of the proposed shoreline portion of the subject parcel (Fredericksen and Frey, 2012; refer to Figure 3). While no surface or subsurface site remnants were located during this survey, intact dune and marine sand deposits were identified during subsurface testing of the proposed Tsunami Revetment project area.

Another hiatus of 2 years followed, including a public review process. The Tsunami Remediation project began in early September 2014 (see Figure 3). Archaeological monitoring was carried out per the previously accepted Plan (Fredericksen, 2007; SHPD Doc No. 0801JP06). The project was almost immediately put on hold following the discovery of nesting petrels within a portion of this earlier project's c. 4.1-acre area of potential effect. Another c. 6-month hiatus occurred, and the project resumed in early March 2015. The archaeological monitoring program was completed in mid-August 2015. While no significant subsurface site remnants were encountered, intact dune and marine sand deposits were located during on-site monitoring. The Archaeological Monitoring Report (Fredericksen, 2015) was prepared and submitted to the SHPD for review and comment. The Monitoring Report was subsequently accepted by the SHPD in early 2016 (SHPD Doc No: 1601MD23).

The current project proposed by Maui All Natural Alternative, LLC (MANA) is identified as the Renewable Energy Conversion and Sludge Processing for the Wailuku - Kahului Wastewater Reclamation Facility (Figure 4). In a 31 October 2017 comment letter, the SHPD stipulated that an archaeological inventory survey was needed for the proposed project (SHPD Doc No. 1710MBF15). Given safety considerations associated with potential subsurface investigation within the active wastewater reclamation facility, Jeff Walsh - MANA project proponent, and Erik Fredericksen, Xamanek Researches LLC, met with SHPD Maui Lead Archaeologist - Matthew B. Farris, on 7 November 2017. Following a discussion related to the challenges inherent with subsurface testing in this active County wastewater reclamation facility, it was determined that 100% archaeological monitoring for investigation would be a more prudent approach for the subject project. Consequently, Maui All Natural Alternative, LLC (MANA) has requested that the State Historic Preservation Division (SHPD) reconsider the 31 October 2017 memo (SHPD Doc No. 1710MBF15, 31 October 2017) regarding the proposed project.

It is important to note that the project area has been substantially altered by the development of the existing WKWWRF. In addition, various safety hazards exist within the proposed project area, which is located within the existing operating WKWWRF. This County facility is a 24-

hour/7-day operating sewage plant and the County of Maui Department of Environmental Management (COM-DEM) has informed MANA that any proposed excavation for non-related construction activities would have to be completed and supervised by the County. The COM-DEM has expressed safety concerns associated with potential interference of existing plant operations and infrastructure (i.e. High Voltage power lines, as well as wastewater and related utility lines that are critical to daily operations). Prior archaeological monitoring associated with the Tsunami Revetment Project on a nearby portion of the subject property identified partly intact dune and marine sand deposits, but no historic properties or significant cultural materials (Fredericksen, 2015).

Given the above potential hazards and the negative public health consequences of inadvertent damage to any of the buried utilities during subsurface testing associated with an archaeological inventory survey, MANA proposes to employ 100% archaeological monitoring for investigation during earthmoving work associated with the development of the new MANA facility. This strategy will allow for greater public health certainty, and help minimize potential disruption of ongoing WKWWRF operations. Based on our 7 November 2017 meeting with Dr. Mathew B. Farris, Lead Archaeologist, Maui SHPD office, MANA believes that this methodology provides the safest path forward for this project.

It is understood that MANA will have a project specific Archaeological Monitoring Plan prepared for the subject wastewater reclamation facility project, and submitted to the SHPD for review and acceptance prior to initiation of any ground altering activities within the proposed project area.

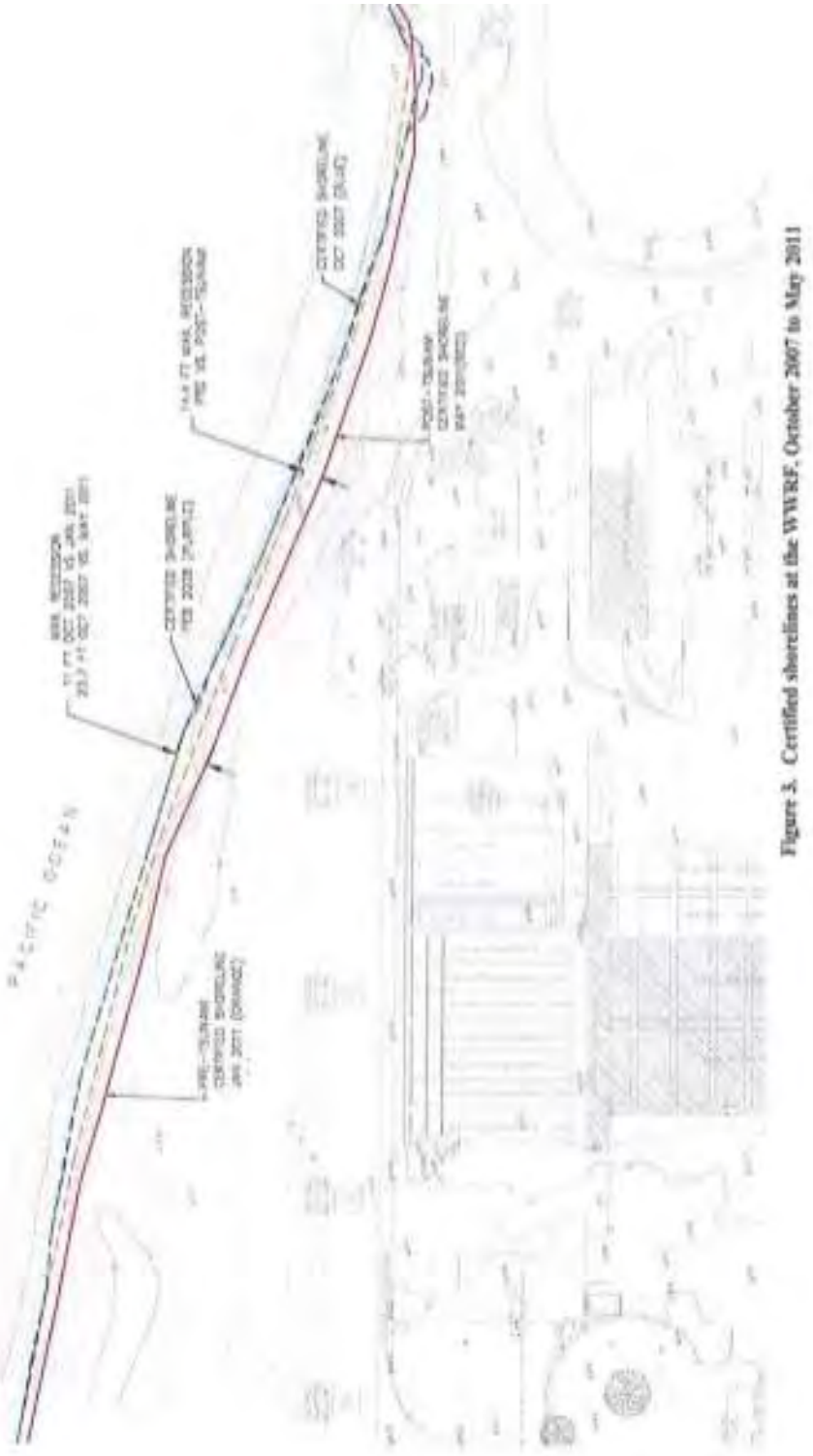

Figure 3. Certified shorelines at the WWRF, October 2007 to May 2011

Figure 1: Location of the Kahului Wastewater Treatment Plant Shoreline Protection Extension Project area, Kahului, Maui (depicted in red).

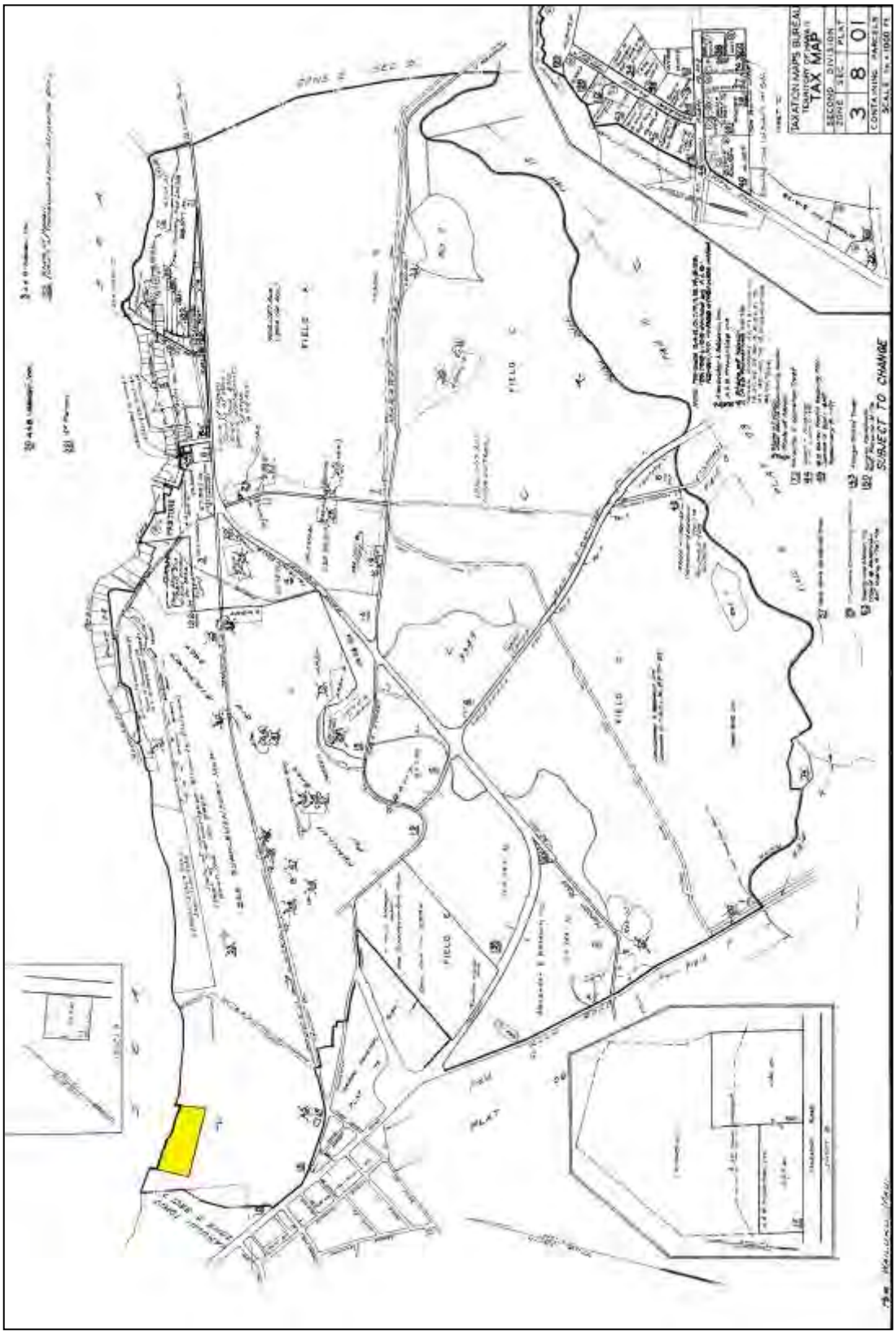

Figure 2: Location of the Kahului Wastewater Treatment Plant project parcel - in yellow (TMK: [2] 3-8-001:188).

Figure 3: 2014-2015 Tsunami Revetment Project area location (hatching), aerial view.

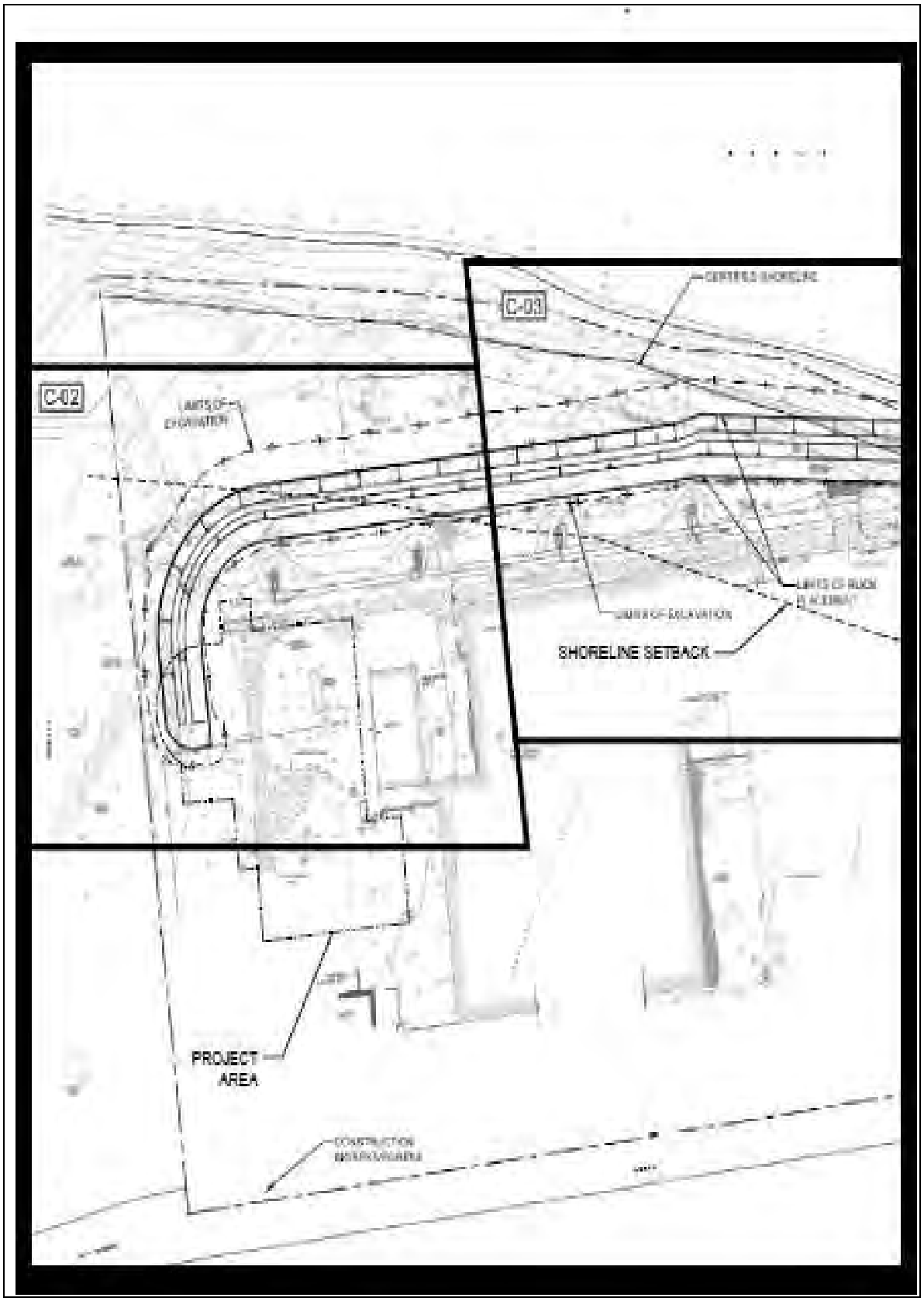

Figure 4: Plan view of the proposed MANA project at the WKWWRF parcel, Maui.

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2012 *AN ARCHAEOLOGICAL ASSESSMENT REPORT FOR AN APPROXIMATELY 1-ACRE PORTION OF LAND FOR THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY SHORELINE PROTECTION EXTENSION, WAILUKU AHUPUA'A, WAILUKU DISTRICT, ISLAND OF MAUITMK: (2) 3-8-001: Portion of 188*. Prepared on behalf of County of Maui, Wastewater Reclamation Division, Wailuku, Maui. Prepared by Xamanek Researches LLC, Pukalani, Maui.

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Appendix E:

Cultural Impact Assessment

Renewable Energy Conversion and Sludge Processing for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF)

Cultural Impact Assessment Report

Prepared by:

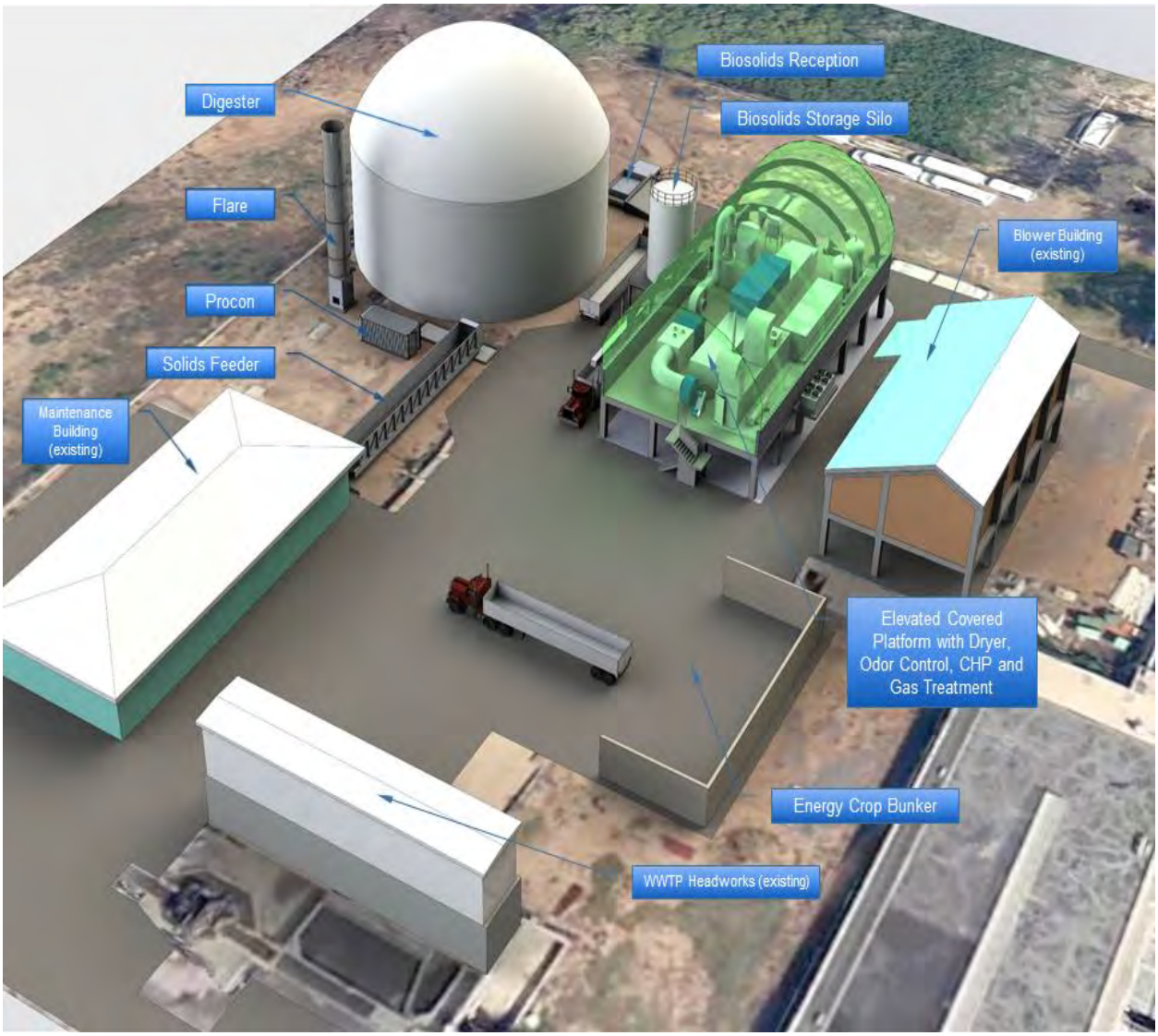
MANA
Maui All Natural Alternative

October 2017

Table of Contents

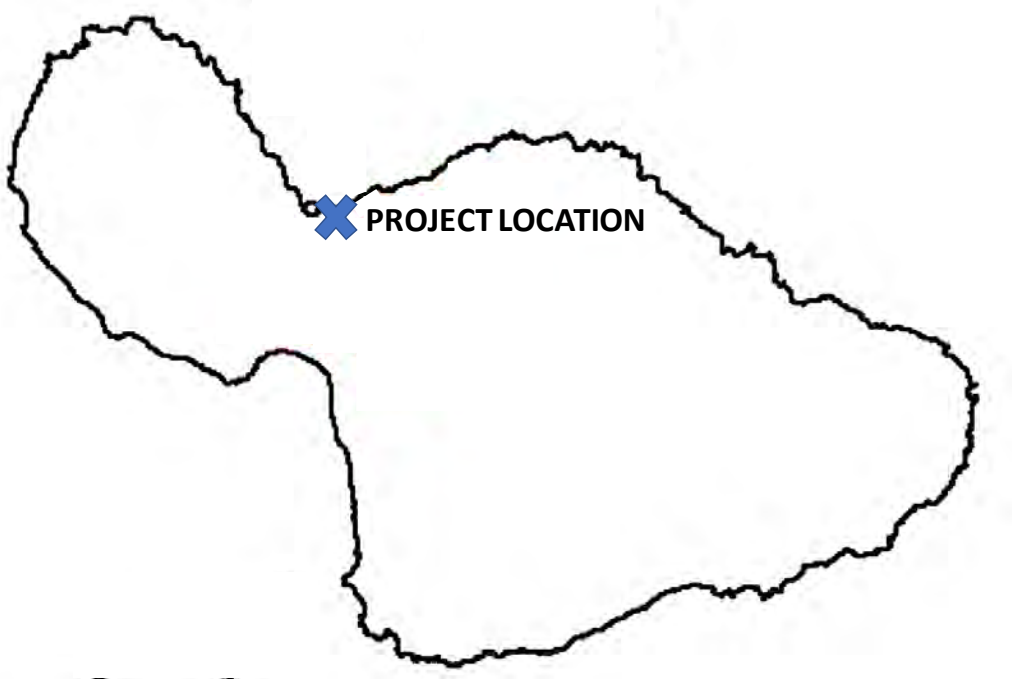
Project Description

MANA will develop a renewable energy and wastewater sludge drying project for the County of Maui. The entire project footprint will be located within the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) in Kahului. The MANA project consists of several structures that will be built and connected to the WKWWRF. The MANA project will be sited on the western portion of the WKWWRF property. The WKWWRF is the main wastewater treatment facility for the Kahului and Wailuku communities, as well as smaller communities in the Central Maui area.



Project Area

The WKWWRF is located near the northern coast of Maui, about a half mile east of the Kahului Harbor. The WKWWRF is on Amala Place, which is the roadway that also provides access to Kanaha Beach Park. Kanaha Beach Park is a County of Maui park that is frequently used by windsurfers, divers, fisherman, and other recreational beach users.



Methodology

For this cultural impact assessment report, the following methodology was developed in accordance with the "Guidelines for Assessing Cultural Impacts", as adopted by the Environmental Council, State of Hawaii, in November 19, 1997.

> *In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment.*

A cultural/historical framework was established from a broad scale to a more local scale to ensure that the appropriate cultural aspects were identified and analyzed. In addition to historical research, a review of recent, relevant cultural assessments prepared for a variety of Environmental Assessments and Environmental Impact Statements were conducted. This background research set the foundation for determining appropriate interviewees for the project area.

Historical/Cultural Context

Maui

The island of Maui is the second largest of the Hawaiian Islands in area and has a rich history. The name itself is renown in local folklore as Maui was an individual who transcended nature. The island was also the setting for many key battles between chiefs as the island contained rich resources.

Maui was the name of a Hawaiian demigod, who was born from the goddess Hina. He was a cunning individual who was also known for his superhuman strength. Maui was a trickster, but he was best known for harnessing the sun to lengthen the day to allow his mother dry strips of kapa. After harnessing the sun with ropes made of wiliwili, Maui formed a pact with the sun to remain overhead longer.

Six hundred years ago, the island of Maui was comprised of four major land districts – Wailuku, Lahaina, Makawao, and Hana and these land districts were also known as moku. These moku were further divided into smaller land areas called ahupua'a. The island of Maui was the location of many fierce battles, particularly between the reigns of Chief Pi'ilani in the 17th century and Chief Kahekili in the 18th century.

Wailuku Ahupua'a

The Wailuku ahupua'a stretched from the mountains to the shore and included the areas now identified as the towns of Wailuku and Kahului. The ahupua'a was largely self-sufficient, whereby supplies and resources from the mountainous area of the ahupua'a were

shared with people from the low-lying areas and vice versa. The chief economic activities during early Hawaii related to agriculture and ocean activities (fishing and limu gathering). Agriculture was further divided into two types, wetland (primarily taro) and dryland (sweet potato, banana, sugar cane, etc.)

During the Great Mahele of 1848, traditional land stewardship shifted toward a westernized system that included private land ownership. The Wailuku ahupua'a was granted to Princess Ruth Ke'elikolani, the great-granddaughter of Kamehameha I, following the death of her brother, Kamehameha V. In 1882, Claus Spreckels secured 24,000 acres of the Wailuku ahupua'a. This land formed the basis for the Hawaiian Commercial & Sugar Company (HC&S).

Kahului

The Kahului area where the project is located, is a coastal flat that flourished with the advent of sugar cane. The town of Kahului grew as sugar expanded and many warehouses, stores, metalworks, and businesses developed in the area to support the sugar industry. Kahului Harbor also evolved around this time to become a vital shipping hub for the island's residents, businesses, and industries. In the general vicinity of the project site, dredged material from Kahului Harbor was utilized to fill in areas that were previously marsh lands.

Archeological Review

Several archeological studies had been conducted in the vicinity in the past, including several on Kahului Airport property and Kanaha Beach Park. Archeological features such as human burials, a subsurface terrace wall, and WWII-era structures were found on Kahului Airport property to the south. WWII-era structures were also found at Kanaha Beach Park. Aside from these historic features, there has not been significant historic features found near the project area.

Cultural Assessment Review

Several Cultural Impact Assessments (CIAs) have been recently prepared for the Kahului area in conjunction with proposed development projects. Most of these CIAs contained a few cultural interviews, which provided insight from the perspective of several local families. Most of these interviews focused on cultural and historical information on Kahului in general, though some interviews had specific information on the Kanaha area.

The CIAs identified the Kahului area as historically being a sandy, marsh, lowland area that did not support agriculture due to the area soil's low fertility. At one time, this lowland area was used for cattle grazing and consisted of scattered dwellings. Within the last 150 years, Kahului became an important center of commerce with the arrival of sugar production and the development of Kahului Harbor. Kahului Railroad was also an important facet of local history in the area.

In the Kanaha area in particular, the CIAs noted Kanaha Pond as being an important cultural feature that supported aquaculture (fish, specifically) for Hawaiian chiefs centuries ago. Kanaha Pond is no longer used as intensely for cultural activities and fish is no longer cultivated in the pond. The primary cultural activity that continues to occur is the use of the shoreline area. While interviewees identified seaweed (limu) picking as being abundant decades ago, dredgings of Kahului Harbor in more recent years may have impacted the availability of limu. Nonetheless, limu gathering, fishing, and octopus diving still occur in the Kanaha area as does surfing. Access rights, containment of sewage from spilling onto the road or ocean, and shoreline erosion were the primary concerns of the interviewees.

Ethnographic Interviews

After review of the historical and cultural attributes of the area, people with intimate knowledge of the area were sought to gain further insight. Three areas that appeared important were: a resource with substantial knowledge of Kanaha Pond and activities surrounding the wetland property; a resource with substantial knowledge of the diving activities fronting the Kanaha Beach Park shoreline; and a resource with substantial knowledge of being a cultural practitioner on the island.

In the search for appropriate individuals, a number of agencies were contacted for resources. These agencies include: the Office of Hawaiian Affairs, the State of Hawaii, Department of Hawaiian Home Lands, and the County of Maui, Department of Planning. However, no resources were identified by these agencies. Based on discussions with resources on the island, individuals were identified as possible contacts with local extensive knowledge. Of these individuals, Mr. Robert (Bob) Hobdy agreed to be interviewed. Recent cultural interviews conducted for the 2012 WKWWRF shoreline revetment project have also been summarized.

Mr. Robert Hobdy

Prior to retirement, Bob Hobdy had been a wildlife biologist for the Department of Fish and Wildlife (DOFAW) for almost four decades. Mr. Hobdy presented a wealth of information on the history of Kanaha Pond, including DOFAW efforts to protect wildlife and to profligate native plants. Mr. Hobdy spoke of the filling of the Kahului area from Kanaha Pond to Kahului Beach Road with the dredging of Kahului Harbor in 1910, which set the stage for development in that area in later years.

He also recalled the fencing of Kanaha Pond in the late 1970's or early 1980's, which served to keep feral dogs out of the pond area and provided some protection of the wetland resource from trespass. Kanaha Pond has considerable historical value as both a wildlife sanctuary and a former inland fishpond from early Hawaii.

Regarding current cultural practices, Mr. Hobdy stated that public access rights to and along the shoreline were important for the community to continue fishing, diving, and other recreational activities at Kanaha Beach Park.

Mr. Clifford Naeole

Mr. Naeole was born and raised on Maui and is of Hawaiian descent. As a child, Mr. Naeole accompanied his grandfather who would dive the entire length of Kanaha Beach. Mr. Naeole grew up frequenting the beaches in Kahului, a town where at the time was small with limited development.

Mr. Naeole fondly recalled fishing as being widespread in the area, with the species of fish commonly found being ulua, halalu, manini, aholehole, kawakawa, and barracuda. Other area activities he noted were crabbing, opihi picking, and limu gathering. He is aware that people still use the area for fishing, diving, surfing, canoe paddling, and shoreline gathering activities.

Ms. Hokulani Holt

Ms. Holt was raised in Waiehu and her familial roots in the area go back six generations. Ms. Holt would frequent beaches in the Kanaha area to engage in limu gathering, fishing, and collecting kiawe wood. She also witnessed others participating in net-laying, diving, and throw-netting activities. In addition to these activities, Ms. Holt mentioned that bright orange flowers of the kaunaoa, a native Hawaiian plant, would be gathered along Kanaha beach for lei-making. Many of these activities still occur in the present day.

Ms. Holt brought up concerns about public access and alterations affecting the ocean environment. She hoped that existing public access opportunities would remain and that fishing spots offshore and marine habitats would not be negatively impacted.

<u>Summary</u>

Over the last 150 years, the town of Kahului has evolved from a sandy, marsh lowland area that supported limited economic activity, to a bustling center of commerce for the island of Maui. The primary cultural resources that continue in the area relate to shoreline and ocean activities. Kanaha Pond remains an important historical and cultural resource that is being maintained by the State of Hawaii. Outside of those resources, cultural activities including trail rights and gathering activities are limited in the Kanaha area. Of particular concern to many individuals is public access to the shoreline and prevention of activities that will cause degradation of the shoreline and nearshore ocean environment. This area is well-utilized for recreation, but due to the sandy, well-drained soils, the plant life in the area is largely non-descript and common for shoreline areas throughout the island.

Overall, with project implementation, existing cultural resources are not anticipated to be impacted. The project is contained within an existing secured area and is not anticipated to impact the shoreline and nearshore areas or Kanaha Pond. As a result, from a cultural and historical perspective, the proposed project will neither enhance nor degrade existing or future opportunities for cultural practices and activities.

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Appendix E1

Cultural Interviews

Cultural Interview with Mr. Bob Hobdy

Mr. Hobdy was raised on Lanai until the 8th grade. He attended Hawaii Preparatory Academy for high school on the Big Island before moving to California and graduating from high school there. He later moved back to Hawaii and worked for the Division of Forestry and Wildlife (DOFAW) for 37 and a half years. He started his DOFAW career on Kauai first then moved to Maui in 1971. He has always been interested in the local community.

Regarding the Wailuku ahupua'a, Mr. Hobdy is aware that access to the ocean/mountains and water rights of Na Wai Eha are important to the local community. In addition, he is aware that homestead lands, loss of 'paper' roads, and public use of forest lands have been substantial issues on the island.

In the project area, Mr. Hobdy noted that prior to 1910, there was no breakwater and harbor in Kahului. During that time, Kahului was a one road town, with boondocks above, and a tidal wetland with ponds all around. In 1910, the territorial government dredged Kahului Harbor and filled from west of the existing Kanaha Pond to Kahului Beach Road. The original, sole outlet of Kanaha Pond was to the west of Pier 2 at Kahului Harbor. Now there is an outlet by Hale Nanea, where wave action makes a sand berm and an excavator is used during major storm events to reduce the level of the pond to allow drainage to the ocean.

Mr. Hobdy noted that there are actually two ponds in what is locally known as Kanaha Pond. Mauoni Pond and Kanaha Pond are separated by a rock wall between them, which still remains. The rock wall is submerged under water so it is not visible. In around the 1700's, Hawaiian chiefs made the ponds to raise fish – an interior fishpond – that was highly productive for hundreds of years as a source of food.

The pond area is a major waterfowl area. In 1951, a bird sanctuary was created. Decades ago, ducks migrated from the mainland by the thousands to the pond and Mr. Hobdy is aware that a local family, the Wong family, used to sell duck eggs from the pond for many years. However, people used to shoot and hunt the ducks so the ducks stopped migrating to the pond.

In the late 1970's or early 1980's the Kanaha Pond area was fenced around its perimeter to keep dogs out as coots and stilt used the mudflats or the water to nest. The fence did not deter cats or mongoose so traps were laid to catch those predators to birds.

With respect to plant life in the area, Mr. Hobdy is not aware of endangered plants, though at one time, the DOFAW staff planted endangered plants in the pond area to grow. He mentioned that there are mostly common coastal plants that are very hardy, since they need to deal with wind and salt.

Mr. Hobdy noted that the drainage patterns in the Kahului area changed decades ago, where runoff water that used to flow into the Kanaha Pond area was diverted away from the pond. As a result, the water in the pond would dry up and there would be dead fish. The smell would often permeate to the industrial area, which caused complaints. To solve the odor issue, the state decided to pump underground brackish water during the dry season to keep water in the pond.

With regards to any cultural practices near the project site, Mr. Hobdy noted that he is aware of octopus (tako) diving and seaweed gathering and that public access at Hale Nanea and east of the Wailuku-Kahului Wastewater Treatment Facility are important to locals. There are some native plants such as akiaki, kaunaoa, and beach naupaka, but no ti leaf or palapalai ferns in the area. There are not too many plant species in the area due to the wind, salt, and well-drained sand.

When asked if he felt that any of the proposed structures may obstruct any marine markings or landmarks, Mr. Hobdy replied that he was not aware of any marine landmarks and due to the low profile of the WKWWRF, it would likely not be used as a landmark. He noted that, if anything, he would guess that the Maui Electric Kahului Power Plant smoke stack would be used as a landmark by boaters due to its height.

Overall, Mr. Hobdy did not feel that the proposed project would impact the limited cultural practices in the area, as those practices primarily centered on public access. The proposed project will not impede public access as it will be located wholly within the perimeter fencing of the WKWWRF.

PROPOSED SHORELINE PROTECTION EXTENSION CULTURAL INTERVIEW SUMMARY

Interview with: Clifford Naeole

Interviewed by: Justin Tanaka, Planner
Mich Hirano, Principal
Munekiyo & Hiraga, Inc.

Clifford Naeole is the Cultural Advisor to the Ritz-Carlton Kapalua Resort and was born and raised on Maui. Mr. Naeole's paternal grandfather was of Hawaiian descent and lived in Waihe'e as a taro farmer. Mr. Naeole recalled that it was common for his paternal grandfather to go diving the length of Kanaha beach to Paukukalo, often in the span of a single afternoon. Mr. Naeole's maternal grandfather, Henry Ching, was of Chinese descent and an avid fisherman. Mr. Naeole recalled that his maternal grandfather once claimed a catch that numbered a total of one-hundred and twenty-eight fish. It was from his maternal grandfather, Henry Ching, that Mr. Naeole ultimately learned how to fish—how to spot fish in the water and where the best places to fish were.

As a youth, Mr. Naeole frequently played amongst the beaches of Kahului, from the harbor all the way up to Naskas (now known as Kanaha). In those days, Mr. Naeole recalled the town of Kahului being a small town with limited development. He lived in a house on Temple Street which serviced a total of only 5 homes. Across the street from his house was a sausage making company, and a few commercial office buildings lay scattered throughout the area. The Kahului Railroad, which his grandfather worked for, ran right through town, passing right next to their house. The few families that lived here were fishing families, including the Aikaus (of Eddie Aikau fame) and the Melamai's.

According to Mr. Naeole, fishing was a widespread practice in this area. It was the favorite place of ulua fishermen, and Mr. Naeole himself would often fish from a pier in the harbor. He remembers that there were plenty of fish in the area, including Halalu, Manini, Aholehole, Kawakawa, and even Barracuda. Besides fishing, other activities such as crabbing, opihi picking, and limu gathering were commonly performed. According to Mr. Naeole, in those days there were many different varieties of limu. However, since dredging of the harbor began, the production of limu began to change. Since about the early 80's, Mr. Naeole observed a strange increase in the growth of foreign limu, with Vaivaiole as the

predominant species. He believes that the influx of limu dampened fishing practices in the area.

Mr. Naeole cites the dredging of Kahului harbor as a major impact to Kahului waters. Before the dredging occurred, he explained that waters at Kanaha and Kahului were clear and clean. After the dredging however, water inside the harbor became milky-colored and dirty, and the water quality outside the harbor changed too. The dredging of the harbor also seemed to affect changes in wave breaks of the area.

Now, Mr. Naeole says the fishing and limu gathering in the Kahului area are not as plentiful as they were before. However, Mr. Naeole knows that people still use the area for fishing, and canoe paddling, diving, surfing, and shoreline gathering. He isn't aware of any other cultural activities in the vicinity of the project site.

The only concerns that Mr. Naeole has in regards to the project is whether or not the Wailuku-Kahului Wastewater Treatment Plant's facilities are up to date. He recalled an incident that happened about six years ago when run-off from the treatment plant spilled over onto the road. He hopes that appropriate measures will be taken to ensure that something like that will not happen again.

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PROPOSED SHORELINE PROTECTION EXTENSION CULTURAL INTERVIEW SUMMARY

Interview with: Hokulani Holt

Interviewed by: Mich Hirano, Principal
Justin Tanaka, Planner
Munekiyo & Hiraga, Inc.

Hokulani Holt is the Director of Cultural Programs at the Maui Arts and Cultural Center and was raised in Waiehu. Ms. Holt's familial roots in the area go back six generations and as a result, she is very familiar with historical and current cultural practices that occur in the area.

As a youth, Ms. Holt recalled that her grandparents would often take her to the various beaches from Waihee to Ka'a, or Kanaha, for shoreline gathering. Her family would also frequent the Kanaha area and would often partake in limu gathering, fishing, and collecting kiawe. Ms. Holt explained that historically, land in the vicinity of the Wailuku-Kahului Wastewater Reclamation Facility was actively used by many fishing families for net-laying, diving and throw-netting. There were also many families in the area, primarily of Hawaiian, Japanese, and Portuguese descent, that lived in Quonset huts built for a Naval Air Station complex.

Ms. Holt acknowledged that in recent years limu growth in the area has subsided, most likely due to the construction of a drainage ditch, located to the west of the WKWWRF, which empties out into the waters off Kanaha. She believes that the drainage ditch altered the quality of the ocean waters and affected limu growth in the area. However, Ms. Holt explained that there are still people who continue to utilize the area today. Kaunaoa, a native Hawaiian plant which is bright orange and stringy in appearance, is often gathered along Kanaha beach for hula and lei-making. Other cultural practices such as diving, shoreline fishing, and kiawe cutting for imu preparation are still performed in the area.

Ms. Holt does not believe that the proposed project will impact coastal waters, however, she is concerned that implementing a revetment would lead to increased erosion of the beach. Ms. Holt also wants to ensure that public access to the beach area will be maintained, to allow the continuation of cultural practices within the area, as well as to

ensure that future cultural practices will be allowed to flourish. Finally, Ms. Holt voiced her concerns for fishing koa, or fishing houses, that may be located offshore of the project site. She explained that the fishing koa are used as fishing sites for local fisherman familiar with the area. She expressed concern that wave action and underscouring at the toe of the revetment will not affect off-shore currents and impact marine habitats and the fishing koa sites.

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Appendix F:

Air Quality, Odor, and
Climate Change Impact

PROJECT REPORT
Maui All-Natural Alternative

Air Quality, Odor, and Climate Change Impact Assessment

Prepared By:

Allan Daly – Senior Consultant
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November 15, 2017

Project 170506.0072

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1. EXECUTIVE SUMMARY

Maui All Natural Alterative, LLC (MANA) is proposing to construct and operate a bioenergy production facility using agricultural waste in Kahului on the island of Maui, Hawaii (the Facility). This report contains an assessment of the air quality, odor, and climate change impacts of the project.

Emissions of criteria pollutants and air toxics were quantified from stationary sources at the MANA facility, which include agricultural waste feedstock processing, a combined heat and power (CHP) engine generator, an air heater, a sludge dryer, and an emergency biogas flare. Facility stationary source emissions were found to be well below the major source thresholds, and hence, a Noncovered Source Permit for air emissions will be sought from the Clean Air Branch of the Hawaii Department of Health. Likewise, an air dispersion modeling analysis was performed, which indicated that emissions of criteria pollutants would not cause or contribute to a violation of any national or state ambient air quality standard.

Additionally, odor impacts from the facility were assessed. The odor assessment was based on a very conservative design criterion that no off-site receptor would be exposed to short-term odors at any time exceeding three odor units (3-OU). This starting point was used to calculate the maximum concentrations of hydrogen sulfide (H_2S) and ammonia (NH_3) permissible from the dryer exhaust. Using this approach, the facility is not expected to create objectionable odors or a public nuisance.

The project is a bioenergy production facility which will anaerobically digest agricultural waste to produce biogas. The biogas will fuel a CHP engine to provide power for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) facility. Because the gaseous fuel (biogas) produced by MANA is from biogenic feedstock, the electricity produced by the CHP engine is considered 100 percent renewable. Because WKWWRF currently purchases electricity from the serving utility—which is produced from the grid average percentage of renewable sources—the power purchased from MANA will displace the non-renewable portion of the electricity currently being used. The result is a net benefit with regard to greenhouse gases (GHG) emitted by electricity generation on Maui.

Likewise, the MANA facility diverts two organic waste streams (agricultural waste feedstock and dewater sewage sludge) for beneficial uses. In the event that these streams were diverted directly to a landfill, they would decompose producing methane (CH_4)—a GHG with a global warming potential 25 times that of carbon dioxide (CO_2). By digesting the feedstock, and converting the sewage sludge to Class A biosolids, the quantity of methane released to the atmosphere is greatly reduced. Furthermore, it is noted that the diversion of these waste streams to the MANA facility largely displaces existing truck trips that already occur on Maui.

2. PROJECT OVERVIEW

MANA is proposing to construct and operate a bioenergy production facility using agricultural waste in Kahului on the island of Maui, Hawaii (the Facility). The Facility would utilize approximately 29,020 tons of agriculture waste per year. Biogas produced by the Facility would fuel up to a 1.0 megawatt (MW) combined heat and power (CHP) engine, which will be used to power the neighboring Wailuku-Kahului Wastewater Reclamation Facility and MANA's onsite operations~~, with surplus power sold to the utility~~. Additionally, the Facility will receive 24,000 tons per year of dewatered sludge from local wastewater treatment facilities to produce 3,130 tons per year (TPY) of dried Class A biosolids.

The Facility will consist of an energy crop receiving bunker and solids feeder; a 1.2 million-gallon digester; biogas treatment system and emergency; a 1.0 megawatt (MW) biogas-fired combined heat and power (CHP) engine; dewatered sludge receiving station, storage silo, and conveyors; sludge dryer; pellet cooler and conveyor/loadout system; and dryer exhaust venturi scrubber.

It is anticipated that a total of three full-time employees and two part-time employees will be required to operate and maintain the facility on a continuously operating basis.

3. PROJECT LOCATION

The Facility is proposed to be co-located at the WKWWRF, which lies on the north side of the island of Maui at 163-153 Amala Place, Kahului, Hawaii. The WKWWRF lies approximately one mile west of the Kahului Airport, one-half of a mile north of Highway 36, and less than 500 feet south of the Pacific Ocean shoreline.

A regional and area map of the proposed site are included as Figures 1 and 2 below. The proposed project site is currently underdeveloped land, surrounded by a lightly forested area to the west, the WKWWRF to the east, and the Kanaha Pond State Wildlife Sanctuary to the south, and the Pacific Ocean to the north. The Facility would be constructed on an approximately 1.0 acres of land on the western portion of the WKWWRF property, as seen in Figure 3. The elevation of the subject property is approximately five feet above mean sea level with an overall downward gradient to the south, although the property is relatively flat.

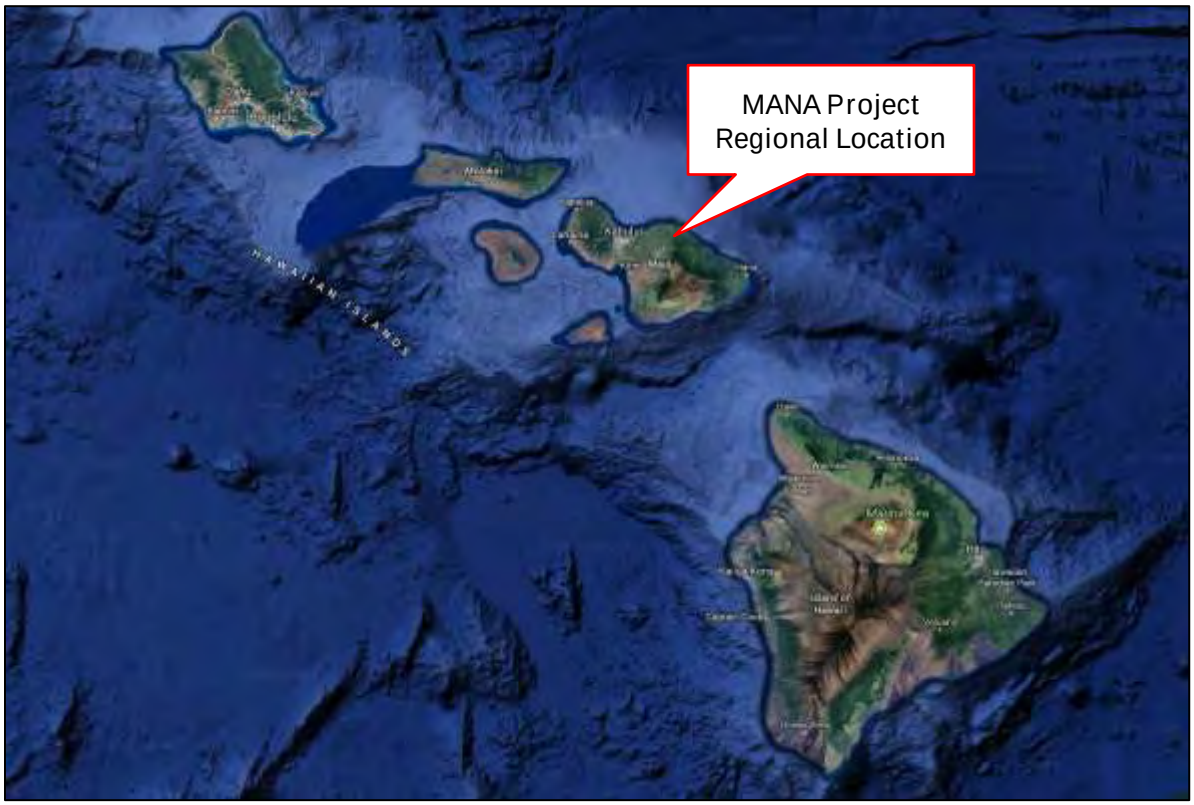


Figure 1: MANA Project Regional Location: Maui, Hawaii

Figure 2: MANA Project Site Location

Figure 3: MANA Facility Location

4. PROJECT DESCRIPTION

The Facility will process two organic waste streams to ultimately produce 800 kW of electricity and 3,130 tons per year of dried Class A biosolids. To achieve this, the Facility will first receive agricultural waste feedstock via end dump trucks at a three-wall storage bunker. Front-end loaders will then load the feedstock material into a solids feeder, which will deliver the material to the 1.2 million gallon anaerobic digester. The anaerobic digester will produce 375 scfm of biogas, estimated to contain 52 percent methane.

The biogas will be routed to a treatment system consisting of a dry scrubber to remove hydrogen sulfide (H_2S), a biogas booster, and a refrigerated dryer to remove moisture. An enclosed flare with propane pilot fuel will be connected to the dry scrubber for emergency use, which would only occur if the CHP engine and sludge dryer are not operating at sufficient load to combust all of the produced biogas. After the treatment system, 230 scfm of the biogas will be sent to the 1.0 MW CHP engine. The CHP engine will be equipped with an emissions control system to remove carbon monoxide (CO), volatile organic compounds (VOC), and ammonia (NH_3). The CHP engine will produce 800 kW of gross electricity on average~~, 480 kW of which will be sold to the utility and the remainder used on-site~~.

The CHP exhaust and the remaining 145 scfm of biogas from treatment system will be routed to an air heating plenum. Ambient air will be heated at the air heating plenum and then routed to the 8.1 MMBtu/hr pellet dryer. The pellet dryer is part of a secondary process line at the Facility which will dry dewatered wastewater treatment plant sludge to produce the Class A biosolids.

This secondary process line begins at a waste receiving station that will accept dewatered sludge from delivery trucks. The sludge will be pumped from the receiving station to a 260 cubic yard sliding frame silo for storage. From the storage silo the sludge cake will be routed to the dryer. Upon exiting the dryer, the biosolids will enter a pellet cooler, and then be routed to a truck load-out system for distribution. The exhaust from the dryer will be treated by a venturi scrubber to control particulate matter.

Construction of the Facility will include the installation of all associated equipment with the process described herein. Figure 4 depicts the site layout for the proposed project, including several existing buildings.

Figure 4: Site Layout

Table 1 below summarizes the relevant input and output parameters for the Facility, including waste consumption, water usage, electrical generation, truck activity, and number of employees. On average, the Facility will receive 4-5 deliveries via truck of energy crop feedstock. These trucks will also haul digestate from the site for disposal. The Facility will also receive, on average, one or two dewatered sludge deliveries via truck from the neighboring WKWWRF, and one dewatered sludge delivery via truck from each of the Lahaina and Kihei Wastewater Reclamation Facilities. One additional truck trip per day will occur for biosolids removal from the Facility. The facility is expected to employ three full time employees per day, and two part time employees for maintenance. A single front end loader will operate full time for feedstock and digestate handling activities.

Table 1: Summary of Proposed Facility Operational Metrics

Parameter	Proposed Quantity
Agricultural Energy Crop Received (tons/year)	29,020
Dewatered Sludge Received (tons/year)	24,000
Electricity Production & Consumption (kW)	1,000
Class A Biosolids Production (tons/year)	3,130
Digestate (tons/year)	29,020
Truck Activity Per Peak Day	
Energy Crop Feedstock	4-5
Dewatered Sludge/Digestate	2-4
Biosolids	1
TOTAL	7-10
Number of Employees	
Full Time	3
Part Time	2

4.1 General Plan Designation and Zoning

The proposed site is currently designated in the Maui County Wailuki-Kahului Community Plan as 'P" – 'Public/Quasi Public.' Consequently, no change in zoning is required to accommodate the proposed project.

4.2 Surrounding Land Uses and Setting

The proposed project site is surrounded by industrial operations on the west and east. Specifically, there is a recycling services operator located west of the Facility and the WKWWRF to the east. The Facility's northern border consists entirely of the Pacific Ocean shoreline which is land designated by the County of Maui as Park land use. The Facility's southern border is defined by Amala Place roadway. Immediately south of Amala Place is the Kanaha Pond State Wildlife Sanctuary, which is designated by the County of Maui as Open Space land use. The nearest residence is approximately 0.8 miles southwest of the Facility. Similarly, the nearest school, Maui Adventist Private School, is also approximately 0.8 miles southwest of the Facility. The Kahului Airport is located about one mile east of the Facility.

5. AIR QUALITY SETTING

5.1 Air Quality Standards

The U.S. Environmental Protection Agency (EPA) sets national ambient air quality standards (NAAQS) for ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter of 10 microns or less (PM_{10}), particulate matter with an aerodynamic diameter of 2.5 microns or less ($PM_{2.5}$), and lead (Pb). These standards establish the maximum concentrations of pollution considered to be acceptable, with an adequate margin of safety, to protect the public health and welfare.

The State of Hawaii has also adopted ambient air quality standards, which in some cases, are more stringent than the NAAQS. Hawaii has set state standards for ozone, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, Pb, and hydrogen sulfide (H_2S).

Both national and state air quality standards consist of two parts—an allowable concentration of the pollutant, and an averaging time over which the concentration is measured. The allowable concentrations are based on studies of the effects of the pollutants on human health, crops and

vegetation, and in some cases, damage to paint and other materials. The averaging times are based on whether the damage caused by the pollutant is more likely to occur during exposure to a high concentration for a short time (e.g., one hour), or to a comparatively lower average concentration over a longer period of time (e.g., 8 hours, 24 hours, or one year). For some pollutants there is more than one air quality standard, reflecting both its short-term and long-term effects. Table 2 below presents the national and state ambient air quality standards for selected pollutants.

Table 2: National and State Ambient Air Quality Standards

Pollutant	Unit	Averaging Period	NAAQS	SAAQS
SO_2	ppb	1 hour	75[a]	--
	ppm	3 hours	0.5[b]	0.5
		24 hours	--	0.14
		1 year	--	0.03
CO	ppm	1 hour	35[c]	9
		8 hours	9[c]	4.4
NO_2	ppb	1 hour	100[d]	--
	ppm	1 year	0.053[c]	0.04
PM_{10}	µg/m³	24 hours	150[e]	150
		1 year	-- [f]	50
$PM_{2.5}$	µg/m³	24 hours (block avg.)	35[g]	--
		1 year	12.0[h]	--
		1 year	15.0[i]	--
O_3	ppm	8 hours (rolling avg.)	0.070[j]	0.08
Pb	µg/m³	3 months (rolling avg.)	0.15[k]	0.15
H_2S	ppm	1 hour	--	0.025

Notes:
a. The three-year average of the 99th percentile of 1-hour maximum daily concentrations must not exceed the level of the standard.
b. Federal Secondary Standard.
c. Not to be exceeded more than once per year.
d. The three-year average of the 98th percentile of 1-hour maximum daily concentrations must not exceed the level of the standard.
e. Not to be exceeded more than once per year on average over three years.
f. EPA revoked the annual PM_{10} standard effective December 17, 2006, due to a lack of evidence linking health problems to long-term exposure. The State still has an annual standard.
g. 98th percentile, averaged over three years.
h. Annual mean, averaged over three years.
i. Annual mean, averaged over three years. Secondary standard.
j. The three-year average of the fourth highest daily maximum value must not exceed the level of the standard.
k. Rolling three-month average may not exceed the level of the standard.

Source: U.S EPA, NAAQS Table, available at https://www.epa.gov/criteria-air-pollutants/naaqs-table
State of Hawaii Department of Health, Air Quality Data Book (2015), available at https://health.hawaii.gov/cab/files/2016/12/aqbook_2015.pdf

5.2 Background Air Quality

The Facility location is in Maui County and is within the jurisdiction of the State of Hawaii Department of Health (DOH) Clean Air Branch (CAB). The DOH CAB acts as the regulatory agency for air pollution control in Maui and is the local agency empowered to regulate air pollutant emissions for the Facility

area. Under the provisions of the Federal Clean Air Act, Maui County is classified as in attainment with regards to the NAAQS.

The only air pollutant monitored in the island of Maui is $PM_{2.5}$. $PM_{2.5}$ concentrations monitored at Kihei (the only station with three years of data) are used to represent project background. Air quality data collected at the Kapolei, Oahu monitoring station (the nearest monitoring station to the project site) for the other regulated criteria pollutants during the years 2013 through 2015 are presented in Table 3. The CAB annual air quality reports indicate that in 2013, 2014, and 2015 (the latest year for which annual reports are available), and excluding the exceedances on the island of Hawai'i due to the volcano, the State of Hawaii was in attainment of all SAAQS and NAAQS.[1]

Table 0. Air Quality in the Project Area: 2013 - 2015

Parameter	Statistic	2013	2014	2015	Strictest Standard
24-hour PM_{10}	Maximum	39	32	32	150 µg/m³
Annual PM_{10}	Annual average	14	15	16	50 µg/m³
24-hour $PM_{2.5}$	3-yr avg 98th percentile	--	--	12	35 µg/m³
Annual $PM_{2.5}$	3-yr avg Annual average	--	--	4.8	12 µg/m³
8-Hour O_3	4th highest daily value	0.051	0.046	0.049	0.075 ppm
1-Hour NO_2	3-yr avg 98th percentile	--	--	23	100 ppb
Annual NO_2	Annual average	0.003	0.004	0.004	0.053 ppm[c]
1-Hour CO	Average of daily max. conc.	0.75	0.6	0.8	9 ppm
8-Hour CO	Average of daily max. conc.	0.70	0.5	0.7	4.4 ppm
1-Hour SO_2	3-year avg 99th percentile	--	--	14	75 ppb
3-Hour SO_2	Average of daily max. conc.	0.002	0.002	0.002	0.5 ppm
24-Hour SO_2	Maximum	0.005	0.008	0.004	0.140 ppm
Annual SO_2	Annual average	0.002	0.002	0.001	0.03 ppm
3-month Pb	Maximum	0.0016	0.001	0.003	0.15 µg/m³
1-Hour H_2S	2nd high	0.022[a]	0.005	0.002	0.025 ppm

Note: Monitored H_2S at Puna (Hawaii) reflects volcanic activity that is not present on Maui; as a result, this monitored value is not used in establishing background H_2S concentration for the project area.

Sources: All except $PM_{2.5}$ and H_2S: Hawai'i State Department of Health, Clean Air Branch records as reported in *2016 Annual Report on Air Emissions from Facilities at Campbell Industrial Park*, October 2016. Available at https://health.hawaii.gov/cab/files/2017/01/2016-CIP-Annual-Report.pdf

$PM_{2.5}$ from Kihei monitoring station; H_2S from Puna E monitoring station. State of Hawaii Air Quality DataBooks for 2013, 2014 and 2015. Available at: http://health.hawaii.gov/cab/hawaii-air-quality-data-books/

[1] Hawaii Air Quality Data Books for 2013, 2014, and 2015. Available at http://health.hawaii.gov/cab/hawaii-air-quality-data-books/.

As seen in Table 3, the Facility location is in attainment of the NAAQS and State AAQS for all pollutants. For the purposes of this air quality assessment, project emission estimates will be combined with the existing pollutant background concentrations and compared to the NAAQS and State AAQS. If the sum of these values is below the NAAQS and State AAQS, it will be assumed that the proposed Facility will have a less than significant impact on air quality.

6. PROJECT EMISSIONS

6.1 Emissions During Construction

The heavy construction equipment that will be used for this work (e.g., backhoes, cranes, trenchers, etc.) will be powered by internal combustion engines that emit typical exhaust air pollutants. Because construction activities will take place over a relatively limited period of time (i.e., less than one year), none of these equipment emissions is expected to add substantially to existing concentrations of these pollutants.

Grading, trenching and other construction-related activities for the new Facility necessarily involves the use of large diesel-fueled construction equipment. However, in the case of the proposed project, the number of pieces of equipment operating at any one time is relatively low. As a result, combustion emissions such as CO, NOx and particulate matter from this equipment are not expected to have a significant effect on air quality.

However, the soil disturbance caused by construction work generates fugitive dust, which although temporary can have a more substantial impact on air quality than emissions from the engines themselves. The potential for adverse effects continues until replacement vegetation has become established or material is placed over the exposed ground. To minimize the potential for fugitive dust impacts, the developer plans to limit the amount of ground disturbance and vegetation removal to the smallest amount possible, disturbing only the minimum areas required to install the new equipment (a total of less than three acres).

The construction activity taking place on the WKWWRF property itself will be minimal. Because the plant equipment is relatively small and self-contained, the number of truck deliveries and the equipment required for on-site assembly will also be minimal.

Specific information regarding the construction equipment that will be used will not be available until a construction contractor is selected. Consequently, overall construction emissions cannot be estimated at this time. However, MANA will require its contractor to implement the standard mitigation measures listed below, as well as whatever additional measures may be required by the construction-related permits that the contractor must obtain from Maui County.

- Maintain all construction equipment in accordance with manufacturer's specifications.
- Fuel all diesel-powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, and auxiliary power units, with motor vehicle diesel fuel.
- Minimize the extent of disturbed area as much as possible.
- Use water trucks as needed to minimize the amount of airborne dust leaving the site.
- Cover or continuously wet dirt stockpile areas containing more than 100 cubic yards of material to minimize the formation of windblown dust.

- Install construction fencing to minimize the transmission of windblown dust onto roadways and adjacent properties.
- Implement permanent dust control measures identified in the project plans as soon as possible following completion of any soil disturbing activities.
- Limit vehicle speed for all construction vehicles moving on any unpaved surface at the construction site to 15 mph or less.
- Cover all trucks hauling dirt, sand, soil, or other loose materials.

6.2 Emissions During Operation

Operational emissions were separated into the following categories: (1) mobile source emissions and (2) stationary source emissions. Potential emissions from mobile sources (delivery trucks) and stationary source activities are discussed in this section.

6.2.1 Mobile Source Emissions

The Facility will receive up to 100 tons per day of biomass material from the nearby Hawaiian Commercial & Sugar (HC&S) plantations and approximately 80 tons per day of dewatered sludge from the Lahaina, Kihei and Kahului wastewater treatment facilities. Approximately 100 tons per day of digestate and 10 tons per day of dried Class A biosolids will leave the facility by truck.

These deliveries and exports are expected to require four to five truck trips per day for the energy crop feedstock imports (which also remove the digestate), three to four truck trips per day for the dewatered sludge imports, and one trip per day for the biosolids removal. These truck trips will produce exhaust emissions during travel and during idling while they unload at the new facility. Most of the truck activity will take place on public roadways and is not expected to result in a significant increase in emissions from on-road vehicles in the area. It is further noted that the majority of vehicle miles travelled (VMT) from these truck trips is merely diverted to and from the Facility from existing haul routes, and therefore does not cause a net increase in mobile source emissions.

6.2.2 Stationary Source Emissions

Summarized below are the equipment and activities at the Facility.

- Feedstock receiving: The biogas feedstock will consist of energy crops from the nearby HC&S agricultural fields. The transfer of the feedstock from the delivery trucks into the storage bunker and from storage to the solids feeder is a potential source of fugitive dust emissions.

- Anaerobic digestion: Anaerobic digestion is the controlled microbial decomposition of organic matter in the absence of oxygen. The anaerobic digestion process will take place at mesophilic temperatures of approximately 100 °F. Biogas (primarily methane and carbon dioxide), water, and digestate are the products of the anaerobic digestion process.

  The digester is a nominal 1.2-million gallon, continuously stirred tank reactor. Once inside the digester tank, the feedstock material and biological digester solids will be continuously mixed. The digester tank will maximize organics destruction and biogas/methane generation while minimizing digestion volume and residual digestate production requiring dewatering and disposal. To promote biological growth, recycled water effluent from WKWWRF will be used in the digester to maintain an appropriate ammonia-nitrogen level. Jacket heat from the combined heat and power engine generator (see below) will be used to maintain optimal processing temperatures. The digester will breakdown the organics in the slurry to methane (CH_4) and CO_2. The anaerobic digester allows the organic matter to decompose in a contained environment to create a biogas with a methane content of approximately 52%.

The biogas will rise to the headspace as it forms, thus accumulating pressure. The biogas will pass through an H_2S treatment membrane installed across the entire headspace of the digester, at which a small quantity of air is introduced to facilitate the growth of oxidizing bacteria to control H_2S. After passing through the membrane, the biogas with be routed to the dry H_2S scrubber, the biogas booster, and a refrigerated dryer. Nominal residence time for the digested material in the digester will be approximately 60 days. This process is entirely enclosed and will have no emissions to the atmosphere.

- Emergency flare: As a contingency for preventing over-pressurization, any excess biogas that cannot be immediately processed in the biogas upgrading system will be flared. The high destruction, enclosed emergency flare will have a propane pilot to ensure complete combustion.

- Engine generator: Most of the produced biogas will be used in a 1.0 MW Jenbacher JGS 320 GS-B.L engine generator to generate on average 800 kW of electricity and process heat. The exhaust from the engine generator will be ducted to an air heating plenum that will recover waste heat that will be used in the sludge dryer.

- Dewatered sludge dryer and pellet cooler: The facility will receive dewatered sludge from the Lahaina, Kihei, and Kahului wastewater reclamation facilities that will be stored onsite in a sliding frame silo. The sludge will be transported to a sludge dryer. The sludge dryer will be heated using waste heat from the CHP engine exhaust, supplemented with combustion of a portion of the produced biogas and supplemental propane burner as needed. The dryer exhaust will pass through a venturi scrubber for particulate control and will be vented to the atmosphere through an elevated stack. After cooling, the dried biosolids will be transferred to a truck loadout system for distribution as fertilizer or compost.

6.2.3 Total Operational Source Emissions

Table 4 below presents the total emission estimates for operational stationary source emissions in pounds per day and tons per year. Detailed emissions calculations are provided in Appendix B of this report. As discussed above, mobile source emissions, such as the 7-10 truck trips per day visiting the site, largely reflect existing waste streams which would be diverted through the Facility. Hence, mobile source emissions from these truck trips are not additional to current activity and do not result in a net increase in emissions from on-highway mobile sources.

The operational emissions from stationary sources were compared to the “major source” thresholds, as defined in Hawaii Administrative Rules, Chapter 11-60.1.

Table 4: Project Operational Stationary Source Emissions

Peak Daily Emissions (pounds per day)						
NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	Lead	H_2S
112.3	192.8	1.4	29.8	29.8	0.0	1.3
Annual Project Emissions (tons per year)						
NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	Lead	H_2S
17.4	31.7	0.2	5.0	5.0	0.0	0.2
Major Source Thresholds (tons per year)						
NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	Lead	H_2S
100	100	100	100	100	10	None
Major Source?						
NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	Lead	H_2S
No	No	No	No	No	No	No

6.3 Toxic Air Contaminants

Because emissions from the Facility will be controlled with state of the art emissions controls, emissions of toxic air contaminants will be minimal. Detailed calculations are shown in Appendix C of this report.

7. AIR QUALITY MODELING

7.1 Modeling Procedures

The air quality dispersion modeling analysis followed current USEPA guidance. The following USEPA air dispersion models were used to quantify pollutant impacts on the surrounding environment based on the emission sources' operating parameters and locations:

- American Meteorological Society/Environmental Protection Agency Regulatory Model Improvement Committee (AERMIC) model, also known as AERMOD (Version 16216r); and
- Building Profile Input Program - Plume Rise Model Enhancements (BPIPPRIME, Version 04274).

The main air dispersion modeling was conducted with the latest version of AERMOD, USEPA's preferred/recommended dispersion model for air quality impact assessments. The basic model equation used in this analysis assumes that the concentrations of emissions within a plume can be characterized by a Gaussian distribution about the centerline of the plume.

Gaussian dispersion models are approved by USEPA for regulatory use and are based on conservative assumptions (i.e., the models tend to overpredict actual impacts by assuming steady-state conditions, no pollutant loss through conservation of mass, no chemical reactions, etc.). The USEPA models were used to determine if ambient air quality standards would be exceeded, and whether a more accurate and sophisticated modeling procedure would be warranted to make the impact determination.

AERMOD can account for building downwash effects on dispersing plumes. Stack locations and heights and building locations and dimensions were input to BPIP-PRIME. The first part of BPIP-PRIME determines and reports on whether a stack is being subjected to wake effects from a structure or structures; the second part calculates direction-specific building dimensions for each structure, which

are used by AERMOD to evaluate wake effects. The BPIP-PRIME output is formatted for use in AERMOD input files.

AERMOD requires hourly meteorological data consisting of wind direction and speed (with reference height), temperature (with reference height), Monin-Obukhov length, surface roughness length, heights of the mechanically and convectively generated boundary layers, surface friction velocity, convective velocity scale, and vertical potential temperature gradient in the 500-meter layer above the planetary boundary layer.

Standard AERMOD control parameters were used, including stack tip downwash, non-screening mode, non-flat terrain, and sequential meteorological data check.

7.2 Meteorological Data

Meteorological data are required from two different types of monitoring locations: surface data that are representative of meteorological conditions near the earth, and upper air data that are representative of meteorological conditions well above the earth's surface. For this modeling analysis, three years of surface meteorological data collected at the nearby Kahului airport and concurrent upper air data collected at the Lihue airport were used. The meteorological data for this project was processed using the adjust u* (ustar) option which became regulatory default following the release of EPA's updated Appendix W modeling guidance.[2]

7.3 Terrain and Receptor Grids

Receptor and source base elevations were determined from USGS National Elevation Dataset (NED) data in the GeoTIFF format at a horizontal resolution of 1 arc-second (approximately 30 meters). All coordinates were referenced to UTM North American Datum 1983 (NAD83), Zone 4. The AERMOD receptor elevations were interpolated among the DEM nodes according to standard AERMAP procedure. For determining concentrations in elevated terrain, the AERMAP terrain preprocessor receptor-output (ROU) file option was chosen.

Cartesian coordinate receptor grids were used to provide adequate spatial coverage surrounding the project area for assessing ground-level pollution concentrations, to identify the extent of significant impacts and to identify maximum impact locations. A 250-meter resolution coarse receptor grid was developed, extending outwards to 10 km. Additional refined receptor grids with 25-meter resolution were placed around the maximum first-high and maximum second-high coarse grid impacts, extending out 1,000 meters in all directions. Concentrations within the facility fenceline were not calculated.

7.4 Nitrogen Dioxide (NO_2) Modeling

Hourly and annual average nitrogen dioxide (NO_2) concentrations were modeled using the Tier 2, EPA-derived Ambient Ratio Method 2 (ARM2) which became regulatory default following the release of the new EPA Appendix W. ARM2 uses an empirical formula based on nation-wide, historical data in order to determine the ratio of NOx to NO_2 in the atmosphere for any given hour within the modeling domain, ranging from 50% to 90% conversion of NOx to NO_2.

[2] Federal Register Vol. 82, No. 10 January 17, 2017
https://www3.epa.gov/ttn/scram/appendix_w/2016/AppendixW_2017.pdf

7.5 Public Health Impacts

This section discusses potential impacts and public exposure associated with airborne emissions of hazardous air pollutants (HAPs) from the construction and operation of the proposed project.

7.5.1 Types of Risks

Cancer risk is the probability or chance of contracting cancer over a human life span (assumed to be 70 years). Carcinogens are assumed to have no threshold below which there would be no human health impact. Any exposure to a carcinogen is assumed to have some probability of causing cancer: the lower the exposure, the lower the cancer risk.

Non-cancer health effects can be either long-term (chronic) or short-term (acute). In determining potential non-cancer health risks from air toxics, it is assumed there is a dose of the TAC below which there would be no impact on human health. The air concentration corresponding to this dose is called the Reference Exposure Level (REL). Chronic toxicity is defined as adverse health effects from prolonged chemical exposure, caused by chemicals accumulating in the body. Because chemical accumulation to toxic levels typically occurs slowly, symptoms of chronic effects usually do not appear until long after exposure commences. The lowest no-effect chronic exposure level for a non-carcinogenic air toxic is the chronic REL. Below this threshold, the body is capable of eliminating or detoxifying the chemical rapidly enough to prevent its accumulation. Chronic RELs have been established for 8-hour and 1-year periods. Acute toxicity is defined as adverse health effects caused by a brief chemical exposure of no more than 24 hours. For most chemicals, the air concentration required to produce acute effects is higher than the level required to produce chronic effects because the duration of exposure is shorter.

7.5.2 Health Impacts from the Project

Construction emissions of HAPs will consist of combustion emissions from diesel fuel in construction equipment (e.g., cranes, dozers, excavators, graders, front-end loaders, backhoes). The discussion of construction impacts in Section 6.1 indicates that emissions of all pollutants during construction are expected be minimal and to last for a short time. No significant public health effects are expected during construction. Strict construction practices that incorporate safety and compliance with applicable laws, regulations, ordinances and standards will be followed. In addition, mitigation measures to reduce air emissions from construction impacts will be implemented as described above.

Project emissions of HAPs will consist of combustion emissions from the engine, air heater and flare, and will total less than 1 ton per year. The emissions calculations presented in Appendix C of this report show that project emissions of HAPs will be minimal. Emissions will be controlled to the maximum extent feasible, and as a result, no significant public health effects are expected during operation.

The maximum amount of any single HAP from the project is 0.3 tons per year of hydrogen sulfide (H_2S). The modeled impacts of H_2S are compared with the health-protective state ambient air quality standard in Section 0 and to nuisance odor thresholds in Section 8, and are shown to be below both thresholds.

7.6 Operational Impacts to Localized Ambient Air Quality

The results of the ambient air quality impact assessment summarized in Table 5 below. The modeled concentrations are combined with existing background concentrations (shown in Table 3) and compared with ambient air quality standards to demonstrate that the proposed project will not cause or contribute to violations of any national or local ambient air quality standards.

Table 5. Air Quality Impacts of Project Operation

Parameter	Statistic	Modeled Concentration, µg/m³	Maximum Background Concentration, µg/m³	Total Concentration with Background, µg/m³	Strictest Standard, µg/m³
24-hour PM_{10}	Maximum	9.68	39	48.7	150
Annual PM_{10}	Annual average	3.07	16	19.1	50
24-hour $PM_{2.5}$	98th percentile	7.43	12[a]	19.4	35
Annual $PM_{2.5}$	Annual average	3.07	4.8[a]	7.9	12
1-Hour NO_2	98th percentile	31.11	43.2[a]	74.3	188
Annual NO_2	Annual average	7.66	7.5	15.2	100
1-Hour CO	Average of daily max. conc.	90.73	1,000	1,090.7	10,000
8-Hour CO	Average of daily max. conc.	55.53	778	833.5	5,500
1-Hour SO_2	99th percentile	0.96	3.6[a]	4.6	196
3-Hour SO_2	Average of daily max. conc.	0.95	5.2	6.2	1300
24-Hour SO_2	Maximum	0.76	21	2.9	365
Annual SO_2	Annual average	0.24	5.3	5.5	80
1-Hour H_2S	2nd high	0.21	7	7.2	35

Note:

a. Background concentrations shown are three-year average values, in accordance with the form of the applicable standard.

8. ODOR IMPACTS

8.1 Regulatory Background

The regulatory background for odor is limited in the United States, as odor is inherently complex. Odor is often caused by a mixture of chemical substances and has subjective qualitative components associated with its perception by the olfactory senses. Neither the State of Hawaii nor the County of Maui defines ambient odor criteria. A local nuisance ordinance for the County of Maui was identified under Title 20 of the Code of Ordinances.

Title 20 of the County of Maui's Code of Ordinances defines nuisances as follows:

> It is declared to be a public nuisance and unlawful for any person, firm or corporation in the County of Maui to cause, permit or allow to escape into the open air, smoke, soot, poisonous gases, dirt, dust or debris of any kind from any smokestack, chimney, flue or incinerator, or any opening of any building, or from any smoldering or open fires under his or its charge or control in such a manner or in such a place as to cause annoyance, detriment, or injury to the health of persons or damage to property.

To ensure compliance with the Maui County nuisance ordinance, the odorous emissions from the Facility should therefore not be at a level to cause annoyance, detriment, or injury to the health of persons or damage to property. In order to minimize annoyance from an objective and technical perspective, a design approach for Facility emissions was employed using a relative strength quantifier for odor.

The approach used in other North American jurisdictions attempts to quantitatively define an objective ambient odor criteria using a relative-strength scale in terms of "odor units" (OUs). As a reference, 1 odor-unit (or simply 1-OU) represents the diluted level where 50% of the population can begin to detect an odor. Referencing an odor in terms of OU provides an objective measure of the "strength" or "intensity" of the odor. The strength of any odor can therefore be expressed in terms of OU.

To better understand this relative scale, if one were to assume an established odor were measured to be 7-OU in the ambient environment, then the odors present in the air would be at a concentration that would require 7 dilutions of "clean and odorless" air to meet the detection threshold. The detection threshold is defined as the point at which half the population can no longer sense the odor.

Dilution to threshold (D/T) criteria can be defined in terms of OU by the following equation:

$$D/T = \frac{Dilution\ Volume + Odorous\ Sample\ Volume}{Odorous\ Sample\ Volume}$$

Odor nuisance criteria in other states have been established based on D/T values as measured in OU. Listed below are examples of odor limits from other states.

State	Regulated Odor Limit (D/T)
Colorado	7-OU (residential/commercial) 15-OU (all other areas)
Connecticut	7-OU
Illinois	8-OU
Kentucky	7-OU
Missouri	7-OU
Nevada	8-OU
North Dakota	7-OU (residential/public receptor)
Wyoming	7-OU

As with all air quality criteria, it is important to consider the averaging time associated with the contaminant. Based on the acute nature of odors (i.e., its effects are immediately noticeable), a best practice is to use a conservative short-term time-averaging period when evaluating the nuisance potential. A time-averaging period of 10 minutes is an accepted best practice for assessing odor criteria.

The UK Environmental Agency published a technical report "Assessment of Community Response to Odorous Emissions," July 2002 (R&D Technical Report P4-095/TR) to provide the scientific background to assist in identifying defensible numerical limits for regulating exposure to odors and in managing environmental annoyance. The report findings present an overall result for a selection of a dozen (bio)-industry odors and proposes a value of 3-OU as a starting point for setting a limit value for managing exposure to environmental odors.

For the purposes of this assessment, the following ambient design criterion was therefore used to define whether an odor constitutes a "nuisance" at sensitive points of reception (i.e., residences, schools, daycare facilities):

> Odor Nuisance Criterion: Odors at sensitive points of reception in the community should be below 3-OU as measured by a 10-minute time-averaged period.

The proposed odor limit will provide a reasonable and an objective measure for managing environmental odor nuisances in the community from this proposed facility.

8.2 Odor Emission Estimates and Modeling

The AERMOD dispersion model was also used to conduct odor modeling, with odor-specific modification changes. Specifically, in the Source Output pathway, the following keywords were modified from their default parameters:

- The default label for the emission rate units was changed from " " to "OU/sec";
- The default label for the concentration output units was changed from " " to "OU/m^3; and
- Since both the emission rate inputs and the concentration outputs are in the same units (i.e., OU), the default emission rate unit conversion factor of "1.0E06" for the air quality modeling was changed to a factor of "1.0'' for the odor modeling.

AERMOD represents results in terms of 1-hour time averages. To convert from a 1-hour to a 10-minute time-averaging period, the following peak-to-mean conversion equation was used:

$$C_0 = C_1 \times (t_1/t_0)^n$$

Where:

C_0 = Concentration at the averaging period t_0
C_1 = Concentration at the averaging period t_1
t_0 = Averaging period t_0
t_1 = Averaging period t_1
n = 0.28

The exponent n is 0.28, which is generally representative of average conditions across a range of atmospheric stabilities.

The design criteria for maximum H_2S and ammonia emission rates from the dryer and flare stacks were calculated based on modelling results that yield a maximum odor impact of 3 OU at any receptor point at or beyond the property line. This approach is extremely conservative since the land uses in the general vicinity of the Site are currently industrial, while odor impacts are typically assessed at sensitive receptors, where sensitive receptors are considered to be places of outdoor human activity and can include residences, places of worship, schools, community centers, parks, and other non-industrial areas.

Outlined below is the approach used to determine the maximum emission rate of H_2S and ammonia from the dryer stack that would just equal an odor concentration of 3-OU.

1. Dispersion modelling was conducted using a unitary emission rate to determine the maximum unitary concentration at the receptors for a 1-hour time-averaging period. This correlation between the emission rate and the concentration is valid for dispersion of both air quality contaminants and odor.

2. The 1-hour time-averaged concentration from the dispersion model, as identified in Step 1, was converted to a 10-minute time-averaged concentration using the peak-to-mean conversion equation to establish a correlation between the unitary emission rate and the maximum impacted concentration on a 10-minute time-averaged basis.

3. For the established maximum odor concentration of 3-OU (10-minute time-averaging period) at the maximum impacted receptor, the maximum corresponding concentrations of H_2S and NH_3 (10-minute time-averaging period) at that receptor were calculated using the following odor threshold of H_2S:

   H_2S: 1 OU/m^3 = 0.5 ppb H_2S = 0.7 ug/m^3 H_2S
   NH_3: 1 OU/m^3 = 46.8 ppm NH_3 = 32,540 ug/m^3 NH_3

4. The maximum H_2S and NH_3 concentrations calculated at the maximum impacted receptor in Step 3 were converted from a 10-minute time-averaging period to a 1-hour time-averaging period since the state of Hawaii has a 1-hour time-averaged H_2S standard.

5. Based on the maximum 1-hour time-averaged H_2S and NH_3 concentrations calculated in Step 4 for the maximum impacted receptor, the maximum H_2S and NH_3 emission rates from the dryer stack were calculated using results of the dispersion modeling in Step 1, which established the correlation between a unit emission rate and the maximum concentration at the receptors.

A summary of the odor emission threshold calculations is summarized in Table 6, with more detailed emissions included in Appendix B of this report.

Listed below are the emission rate design values for the stack in terms of odor to meet the 3-OU target criteria for a 10-minute time-averaged period:

- Hydrogen Sulfide (H_2S) from the Dryer Stack: 2.3 x 10-2 g/s
- Ammonia (NH_3) from the Dryer Stack: 1.1 x 10+03 g/s

Based on the design criteria specified above, the maximum odor impact of 3-OU occurs immediately south of the Facility, as shown in the odor isopleth presented in Figure 5. Odor impacts between 1-OU and 3-OU occur in the general industrial area surrounding the Facility. This industrial area includes several other heavy industrial operations that are potential sources of background odor.

The design criteria and odor modeling demonstrate there are no predicted instances of odor impacts which would be considered a nuisance.

Table 6. Summary of Odor Analysis Criteria and Results

Parameter	Value
States with an 8-OU Threshold	IL, NV
States with a 7-OU Threshold	CT, KY, MO, ND, WY
3-OU 'Starting Point' Value	United Kingdom Environmental Agency
3-OU Maximum At Any Receptor	MANA Project Established Odor Criteria
Significant Odor Impact?	No

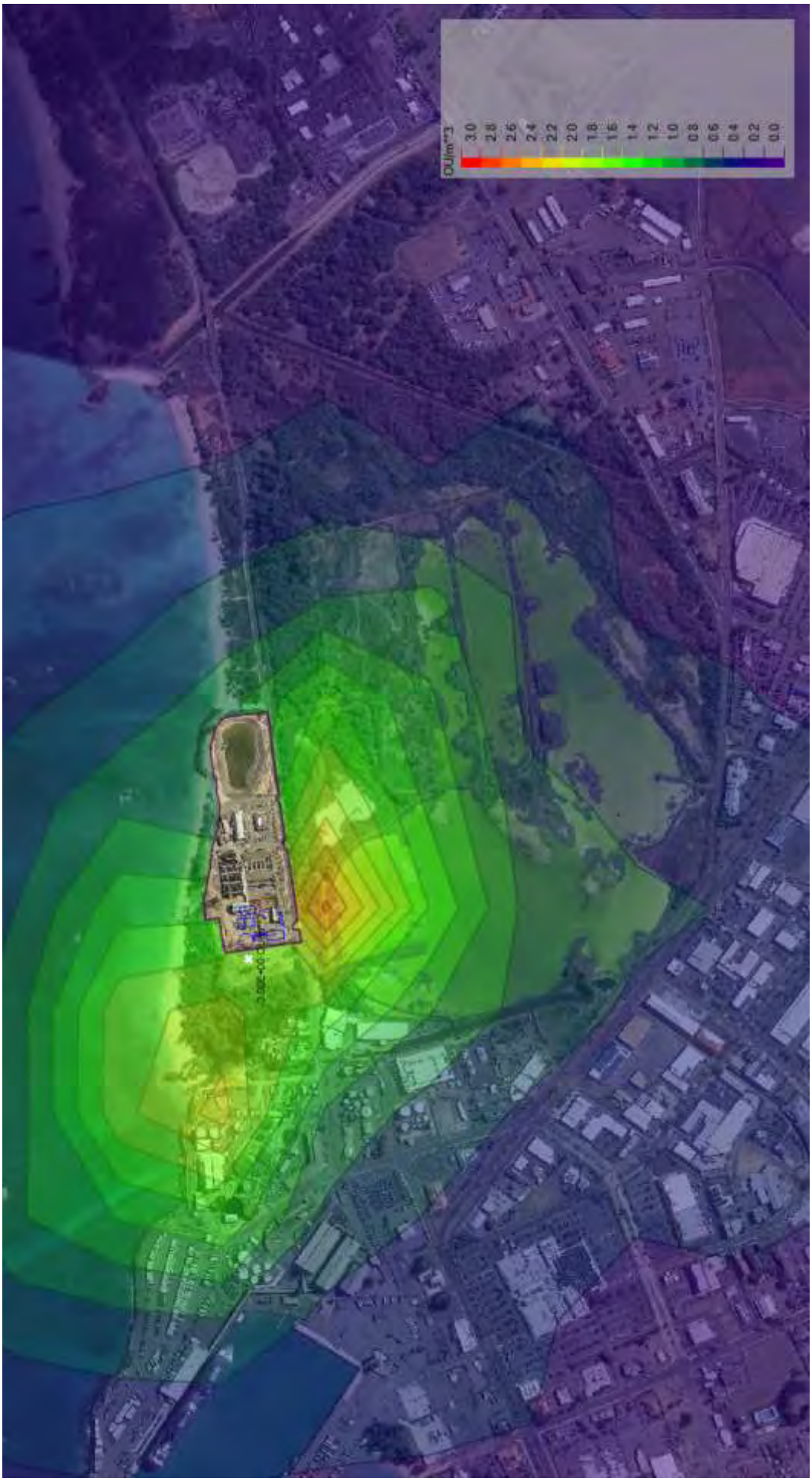


Figure 5: Isopleth of Odor Contours

9. CLIMATE CHANGE IMPACTS

On August 1, 2016, the Executive Office of the President, Council on Environmental Quality (CEQ) released its Final Guidance for Federal Departments and Agencies on Consideration of Greenhouse Gas Emissions and the Effects of Climate Change in National Environmental Policy Act Reviews. CEQ's Guidance states:

> Climate change science continues to expand and refine our understanding of the impacts of anthropogenic GHG emissions. CEQ's first Annual Report in 1970 referenced climate change, indicating that "[m]an may be changing his weather." At that time, the mean level of atmospheric carbon dioxide (CO_2) had been measured as increasing to 325 parts per million (ppm) from an average of 280 ppm pre-Industrial levels. Since 1970, the concentration of atmospheric carbon dioxide has increased to approximately 400 ppm (2015 globally averaged value). Since the publication of CEQ's first Annual Report, it has been determined that human activities have caused the carbon dioxide content of the atmosphere of our planet to increase to its highest level in at least 800,000 years.
>
> It is now well established that rising global atmospheric GHG emission concentrations are significantly affecting the Earth's climate. These conclusions are built upon a scientific record that has been created with substantial contributions from the United States Global Change Research Program (USGCRP), which informs the United States' response to global climate change through coordinated Federal programs of research, education, communication, and decision support. Studies have projected the effects of increasing GHGs on many resources normally discussed in the NEPA process, including water availability, ocean acidity, sea-level rise, ecosystem functions, energy production, agriculture and food security, air quality and human health.
>
> Based primarily on the scientific assessments of the USGCRP, the National Research Council, and the Intergovernmental Panel on Climate Change, in 2009 the Environmental Protection Agency (EPA) issued a finding that the changes in our climate caused by elevated concentrations of greenhouse gases in the atmosphere are reasonably anticipated to endanger the public health and public welfare of current and future generations. In 2015, EPA acknowledged more recent scientific assessments that "highlight the urgency of addressing the rising concentration of CO_2 in the atmosphere," finding that certain groups are especially vulnerable to climate-related effects. Broadly stated, the effects of climate change observed to date and projected to occur in the future include more frequent and intense heat waves, longer fire seasons and more severe wildfires, degraded air quality, more heavy downpours and flooding, increased drought, greater sea-level rise, more intense storms, harm to water resources, harm to agriculture, ocean acidification, and harm to wildlife and ecosystems.

The CEQ subsequently revoked its NEPA climate change guidance on April 4, 2017; nonetheless, this technical report will address the environmental impact of climate change.

The project is a bioenergy facility which will anaerobically digest agricultural waste to produce biogas. The biogas will fuel a CHP engine to provide power for the neighboring WKWWRF facility, with surplus power sold to the utility. Because the gaseous fuel (biogas) produced by MANA is from biogenic feedstock, the electricity produced by the CHP engine is considered 100 percent renewable. Because WKWWRF currently purchases electricity from the serving utility—which is produced from the grid average percentage of renewable sources—the power purchased from MANA will displace the non-

renewable portion of the electricity currently being used. The result is a net benefit with regard to greenhouse gases (GHG) emitted by electricity generation on Maui.

Likewise, the MANA facility diverts two organic waste streams (agricultural waste feedstock and dewater sewage sludge) for beneficial uses. In the event that these streams were diverted directly to a landfill, they would decompose producing methane (CH_4)—a GHG with a global warming potential 25 times that of carbon dioxide (CO_2). By digesting the feedstock, and converting the sewage sludge to Class A biosolids, the quantity of methane released to the atmosphere is greatly reduced. Furthermore, it is noted that the diversion of these waste streams to the MANA facility largely displaces existing truck trips that already occur on Maui.

Notwithstanding the above, GHG emissions from stationary sources were quantified in Appendix B of this report and summarized in Table 7. This was done because the DOH air permitting regulations require quantification of GHGs (including biogenic GHGs) in the noncovered source permit application for comparison with significant emission rate thresholds and to demonstrate that the facility is exempt from requirement to prepare and implement a GHG Reduction Plan. These thresholds are found at §11-60.1-1 and §11-60.1-204 of the Hawaii Administrative Rules, respectively.

Table 7: Project Operational Greenhouse Gas Emissions

Annual Project Emissions tons/year)							
CO_2	N_2O	CH_4	CO_2e	Significant Emissions Threshold	Significant?	GHG Reduction Plan Threshold	GHG Reduction Plan Required?
9,506	0.12	0.58	9,555	40,000	No	100,000	No

Appendix B

Stationary Source Criteria Pollutant Emission Calculations

MAUI ALL-NATURAL ALTERNATIVE
KAHULUI FACILITY

MAXIMUM EMISSIONS - Feedstock Processing

Parameter	
Device	Feedstock Processing
Annual Operating Hours	7,500
Annual Operating Days	312
Feedstock Receiving Rate (tph)	4

Feedstock Receiving (tons)	
Daily	Annual
93	29,020

Pollutant	Emission Rate (lb/ton)	Maximum Emissions		
		Hourly (lb)	Daily (lb)	Annual (tons)
CO	N/A	N/A	N/A	N/A
NOx	N/A	N/A	N/A	N/A
PM10	0.002	0.01	0.20	0.03
PM2.5	N/A	N/A	0.0	N/A
SOx	N/A	N/A	N/A	N/A
VOC	N/A	N/A	N/A	N/A

Notes

Annual feedstock receiving rate (in tpd and tpy) was specified by MANA (flow diagram dated 3/29/17).

Annual receiving hours reflects 6 days/week and 52 weeks/year.

Feedstock receiving rates (in tph) was calculated from the annual receiving rate (in tpy) and the annual operating hours (in hr/yr and days/yr).

PM10 emission rate (in lb/ton) was derived from a San Joaquin Valley Air Pollution Control District emissions methodology document for composting, available at https://www.valleyair.org/Air_Quality_Plans/EmissionsMethods/MethodForms/Current/Composting2006.pdf and assuming two drop points (dump truck to bunker and bunker to solids feeder).

MAXIMUM EMISSIONS - BIOGAS FLARE

Parameter	
Device	Enclosed Flare
Make	N/A
Model	N/A
Fuel	Biogas
Standard Temp (F)	68
Biogas Flow Rate (scfh)	22,500
Higher Heating Value (Btu/scf)	482
Heat Input Rate (MMBtu/hr @ HHV)	10.85
Inlet H2S Concentration (ppmvd)	500
Inlet NMHC Concentration (ppmvd)	838
F-Factor (dscf/MMBtu @ 0% O2)	9,400
F-Factor (dscf CO2/MMBtu)	1,800
Biogas Destruction Efficiency	99.5%

Fuel Consumption (MMBtu)	
Daily	Annual
260	41,820

Pollutant	Exhaust Concentration (ppmvd @ 3% O2)	Emission Rate (lb/MMBtu)	Maximum Emissions		
			Hourly (lb)	Daily (lb)	Annual (tons)
CO	163	0.13	1.41	33.9	2.7
NOx	88	0.12	1.25	29.9	2.4
PM10 ---> gr/dscf	0.007	0.015	0.16	3.9	0.3
PM2.5 ---> gr/dscf	0.007	0.015	0.16	3.9	0.3
SOx	2.5	0.0009	0.01	0.2	0.0
VOC	4.2	0.0019	0.02	0.50	0.0
H2S	2.5	0.0024	0.03	0.63	0.1

Notes

Biogas feed rate (in dscfm), inlet H2S concentration (in ppmv), inlet NMHC concentration (in ppmv) and biogas destruction efficiency were specified by MANA.

Higher heating value (HHV, in Btu/scf) and F-Factors (in dscf/MMBtu) were calculated from fuel composition data provided by MANA and fuel LHV in engine specification.

Maximum hourly heat input rate (in MMBtu/hr) was calculated from the biogas flow rate (in scfh) and the HHV (in Btu/scf).

CO/NOx emission rates (in lb/MMBtu) were taken from a similar project. PM10 emission rate (in lb/MMBtu) was derived from Table 2.4-4 of AP-42 (Draft, October 2008) at a methane content of 52% and the HHV (in Btu/scf). SOx emission rate (in lb/MMBtu) was calculated from the inlet H2S (in ppmv) and the HHV (in Btu/scf).

VOC emission rate (in lb/MMBtu) was calculated from the inlet NMHC concentration (in ppmvc), destruction efficiency (in %), and the HHV (in Btu/scf).

Annual operating schedule assumed to be 85% of time at 40% capacity and 10* of time at 100% capacity.

MAXIMUM EMISSIONS - AIR HEATER

Parameter	
Device	Air Heater
Make	TBD
Model	TBD
Fuel	Biogas/Propane
Standard Temp (F)	68
Biogas Flow Rate (scf/hr)	8,700
Higher Heating Value (Btu/scf)	482
Heat Input Rate (MMBtu/hr @ HHV)	4.2
Post-H2S Removal Sulfur Content (ppmw)	7
F-Factor (dscf/MMBtu @ 0% O2)	9,400
F-Factor (dscf CO2/MMBtu)	1,700
Operating hours/day	22
Operating hours/yr	8,000

Fuel Consumption		
Daily	Annual	Units
92	33,563	MMBtu
0.19	70	MMscf

Pollutant	Exhaust Concentration (ppmvd @ 3% O2)	Emission Factor lb/MMBtu	Maximum Emissions		
			Hourly (lb)	Daily (lb)	Annual (tons)
CO	49	0.0388	0.16	3.57	0.7
NOx	39	0.0517	0.22	4.75	0.9
PM10 ---->gr/dscf @ 12% CO2	0.008	0.0158	0.07	1.45	0.3
PM2.5 ---->gr/dscf @ 12% CO2	0.008	0.0158	0.07	1.45	0.3
SOx	1.3	0.0024	0.010	0.22	0.0
VOC (as CH4)	25	0.0114	0.05	1.05	0.2
H2S	0.1	0.0013	0.005	0.12	0.0

Notes

Propane/biogas flow rate (in scfm) specifed by MANA.

Biogas lower heating value (LHV, in Btu/scf) reflects project specs; converted to HHV using 0.9.

Heat input rate (in MMBtu/hr) was calculated from the flow rate (in scf/hr) and the HHV (in Btu/scf).

F-Factors were calculated based on the biogas composition.

Maximum daily and annual fuel feed rates (in scf/hr and scf/yr) was calculated from the hourly fuel flow rate and the daily and annual operating schedules.

CO and NOx emission factors (in lb/MMBtu) were obtained from a similar project. PM10 and VOC emission factors (in lb/Mscf) were obtained from AP-42 Table 1.4-2 and converted to lb/MMBtu using the biogas heating value.

SOx emission rate (in lb/MMBtu) was calculated from the biogas sulfur content (in ppmw) and the density (in lb/scf).

Emission rates were calculated from the emission factors (in lb/MMBtu or lb/Mscf) and the corresponding heat input and fuel feed rates.

MAXIMUM EMISSIONS - SLUDGE DRYER

Parameter	
Device	Dryer
Make	TBD
Model	TBD
Fuel	Unfired
Standard Temp (F)	68
Exhaust Temp (F)	68
Exhaust Flow (acfh)	1,765,733
Average Sludge Input Rate (tph)	3.2
Venturi PM Control Value (gr/dscf)	10.00
VOC outlet concentration (ppmvd)	1.00
NH3 outlet concentration (ppmvd)	20.00
Exhaust Flow Rate (NM3/hr)	50,000

Dryer Throughput, tons	
Daily	Annual
77	28,105

Pollutant	Exhaust Concentration	Emission Rate (lb/ton)	Maximum Emissions		
			Hourly (lb)	Daily (lb)	Annual (tons)
CO	N/A	N/A	N/A	N/A	N/A
NOx	N/A	N/A	N/A	N/A	N/A
PM10 (mg/m3)	10	0.333	1.10	25.7	4.7
PM2.5 (mg/m3)	10	0.333	1.10	25.7	4.7
SOx	N/A	N/A	N/A	N/A	N/A
VOC (ppmvd @ 3% O2)	1	0.027	0.085	2.0	0.4
NH3 (ppmvd @ 3% O2)	20	0.565	1.812	43.5	7.9

Notes

Sludge dryer feed rate (in tph) specified by MANA.

Design exhaust flow rate (in dscfh) was provided by MANA.

PM10 emission factor (in gr/dscf) was provided by MANA. PM10 was assumed to comprise 100% PM2.5. Exhaust PM emission rate (in lb/ton) was calculated from the outlet concentration (in gr/dscf) and exhaust flow rate (in dscfh).

Exhaust VOC concentrations (in ppmvd) was provided by MANA. Exhaust emission rate (in lb/ton), was calculated from the exhaust concentration and exhaust flow rate (in dscfh).

N/A: CO, NOx and SOx emissions from the dryer are zero because there is no fuel combustion in this unit.

MAXIMUM EMISSIONS - ENGINE GENERATOR

Parameter	
Device	Engine Generator
Engine Generator Manufacturer	Jenbacher
Engine Generator Model	Ecomax 10 BIO
Fuel	Biogas
Standard Temp (F)	68
Generator Output (kW)	1,062
Engine Output (bhp)	1,468
Biogas Flow Rate (scfh)	21,353
Higher Heating Value (Btu/scf)	482
Heat Input Rate (MMBtu/hr @ HHV)	10.30
Post-H2S Removal Sulfur Content (ppmw)	7
F-Factor (dscf/MMBtu @ 0% O2)	9,400
F-Factor (dscf CO2/MMBtu)	1,800

Fuel Consumption (MMBtu)	
Daily	Annual
247	90,199

Pollutant	Exhaust Concentration (ppmvd @ 15% O2)	Emission Rate (g/bhp-hr)	Maximum Emissions		
			Hourly (lb)	Daily (lb)	Annual (tons)
CO	260	2.0	6.47	155.3	28.4
NOx	79	1.0	3.23	77.60	14.2
PM10 ---> gr/dscf @ 12% CO2	0.005	0.03	0.10	2.47	0.5
PM2.5 ---> gr/dscf @ 12% CO2	0.005	0.03	0.10	2.47	0.5
SOx	0.4	0.008	0.025	0.60	0.1
VOC (as CH4)	158	0.7	2.26	54.3	9.9
H2S	0.01	0.004	0.013	0.3	0.1

Notes

Engine exhausts through sludge dryer and its emissions are included at that emission point.

Generator output (in kW) and engine output (in bhp) were specified by Jenbacher for a biogas fuel.

Heat input rate (in MMBtu/hr @ HHV) and LHV of fuel provided by Jenbacher.

Fuel HHV (in Btu/scf) and F-Factors (in dscf/MMBtu) were calculated for the biogas fuel specification used by Jenbacher and provided by MANA.

Gas flow rate (in scfm) was calculated from the heat input rate (in MMBtu/hr @ HHV and the HHV (in Btu/scf) for the biogas.

CO/NOx/VOC emission rates (in gbhp-hr) are taken from NSP No. 0841-01-N and reflect BACT. SOx emission rate (in g/bhp-hr) was calculated from the fuel sulfur content after scrubbing and assuming 95% conversion of H2S to SOx, and the engine output (in bhp-hr). Hourly emissions (in lb/hr) were calculated from the emission rate (in g/bhp-hr) and the engine output (in bhp).

PM10 emission rate (in lb/MMBtu) from AP-42 Table 3.2-2. Hourly emissions (in lb/hr) were calculated from the emission rate (in lb/MMBtu) and the heat input rate (in MMBtu/hr). PM2.5 emisions were assumed to comprise 100% of PM10 emissions.

Daily emissions (in lb/day) were calculated from the hourly emisson rate at 24 hr/day. Annual emissions were calculated based on 8760 hrs/yr of operation.

MAXIMUM FACILITY EMISSIONS

Emission Unit	Maximum Hourly Emissions, lb/hr					
	NOx	SOx	CO	VOC	PM10/PM2.5	H2S
Receiving/Pre-Processing	N/A	N/A	N/A	N/A	0.01	N/A
Emergency Biogas Flare	1.2	0.01	1.4	0.02	0.2	0.03
Air Heater	0.05	0.00	0.16	0.05	Note 1	0.01
Sludge Dryer	N/A	N/A	N/A	0.1	1.1	N/A
Engine Generator	3.2	0.02	6.5	2.3	Note 1	0.01
Dryer Exhaust (Note 1)	3.3	0.03	6.6	2.4	1.1	0.02
TOTALS (incl fugitives)	5	0.04	8	2.4	1.3	0.04

Emission Unit	Maximum Daily Emissions, lbs/day					
	NOx	SOx	CO	VOC	PM10/PM2.5	H2S
Receiving/Pre-Processing	N/A	N/A	N/A	N/A	0.20	N/A
Emergency Biogas Flare	29.9	0.2	33.9	0.5	3.9	0.6
Air Heater	4.8	0.2	3.6	1.0	Note 1	0.1
Sludge Dryer	N/A	N/A	N/A	2.0	25.7	N/A
Engine Generator	77.6	0.60	155.3	54.3	Note 1	0.3
Dryer Exhaust (Note 1)	82.4	0.8	158.9	57.4	25.7	0.4
TOTALS (incl fugitives)	112.3	1.0	192.8	57.9	29.8	1.1

Emission Unit	Maximum Annual Emissions, tpy					
	NOx	SOx	CO	VOC	PM10/PM2.5	H2S
Receiving/Pre-Processing	N/A	N/A	N/A	N/A	0.03	N/A
Emergency Biogas Flare	2.4	0.02	2.7	0.04	0.3	0.1
Air Heater	0.9	0.0	0.7	0.2	Note 1	0.0
Sludge Dryer	N/A	N/A	N/A	0.4	4.68	N/A
Engine Generator	14.2	0.11	28.4	9.9	Note 1	0.1
Dryer Exhaust (Note 1)	15.0	0.1	29.0	10.5	4.7	0.1
TOTALS (incl fugitives)	17.4	0.2	31.7	10.5	5.0	0.1

Notes:

1. Engine generator and air heater emissions are ducted through dryer so engine PM emissions are included in dryer emissions.

ODOR EMISSION RATE CALCULATIONS

Item	Source		Input	Units	Averaging Period	Output	Units
1	Unit Model	Unit	1	g/s	1-hour	56.53	ug/m^3
2	Conversion of units from ug/m^3 to g/m^3	Unit	1	g/s	1-hour	5.65E-05	g/m^3
3	Conversion to odor-based input and output labels	Odor	1	OU/s	1-hour	5.65E-05	OU/m^3
4	Conversion of averaging period of Item [3] from 1-hour to 10-min	Odor	1	OU/s	10-min	9.34E-05	OU/m^3
5	Maximum odor criteria established for any receptor	Odor	3.21E+04	OU/s	10-min	3	OU/m^3
H_2S							
6	Max. H_2S concentration (10-min) to meet odor criteria in Item [5]	H_2S	3.21E+04	OU/s	10-min	2.10	ug/m^3
7	Max. 10-min H_2S concentration in Item [6] to a 1-hour period	H_2S	3.21E+04	OU/s	1-hour	1.27	ug/m^3
8	Max. H_2S emission rate	H_2S	2.25E-02	g/s	1-hour	1.27	ug/m^3
NH_3							
9	Max. NH_3 concentration (10-min) to meet odor criteria in Item [5]	NH_3	3.21E+04	OU/s	10-min	97619.63	ug/m^3
10	Max. 10-min NH_3 concentration in Item [9] to a 1-hour period	NH_3	3.21E+04	OU/s	1-hour	59109.16	ug/m^3
11	Max. NH_3 emission rate	NH_3	1.05E+03	g/s	1-hour	59109.16	ug/m^3

Assumptions:

Value	Parameter
56.52993	Unit modeling results, in ug/m^3
0.28	Peak-to-mean ratio n value
3	Maximum odor concentration at receptor
0.7	Odor threshold for H_2S, in units of ug/m^3
32539.9	Odor threshold for NH_3, in units of ug/m^3

MAXIMUM GHG EMISSIONS

Parameter	Generator Engine	Emergency Flare	Air Heater
Heat Input Rate (MMBtu/hr)	10.30	10.85	4.2
Annual Heat Input (MMBtu/yr)	90,199	41,820	33,563
CO2 Emission Factor (kg/MMBtu)	52.07	52.07	52.07
N2O Emission Factor (kg/MMBtu)	6.3E-04	6.3E-04	6.30E-04
CH4 Emission Factor (kg/MMBtu)	3.2E-03	3.2E-03	3.20E-03
CO2 Global Warming Potential	1	1	1
N2O Global Warming Potential	298	298	298
CH4 Global Warming Potential	25	25	25

Pollutant	Maximum Annual Emissions (tpy)			
	Generator Engine	Emergency Flare	Air Heater	Stationary Source
CO2	5,178	2,401	1,927	9,506
N2O	0.063	0.0290	0.0233	0.12
CH4	0.318	0.148	0.118	0.58
CO2 (CO2e)	5,178	2,401	1,927	9,506
N2O (CO2e)	18.67	8.66	6.95	34
CH4 (CO2e)	7.96	3.69	2.96	15
TOTAL CO2e (tpy)	5,205	2,413.2	1,936.7	9,555

Notes

CO2, N2O and CH4 emission factors were obtained from Table C-2 of Subpart C of 40 CFR Part 98.

Global warming potentials were obtained from Table A-1 of Subpart A of 40 CFR Part 98.
Annual emissions (in tpy CO2e) were calculated from the annual emissions (in tpy) and the global warming potentials (in lb CO2e/lb).

Design Assumptions		
	Dryer Venturi PM Control Value (mg/m3)	10.00
	Dryer VOC outlet concentration (ppmvd)	1.00
	H2S Combustion Conversion Efficiency	95%
	Post-Combustion H2S Concentration (ppmvd)	25
	Post-H2S Removal Sulfur Content (ppmw)	7
	Dryer Exhaust Ammonia Content (ppmv)	20
	Biogas Destruction Efficiency of Flare	99.5%
	Flare Inlet H2S Concentration (ppmvd)	500
	Flare Inlet NMHC Concentration (ppmvd)	838
	Engine CO (g/bhp-hr)	2.0
	Engine NOx (g/bhp-hr)	1.0
	Engine VOC (g/bhp-hr)	0.7

Appendix C

Stationary Source Toxic Air Contaminant Emission Calculations

MAUI ALL-NATURAL ALTERNATIVE
KAHULUI FACILITY

MAXIMUM HAP EMISSIONS - BIOGAS FLARE

Parameter	
Device	Enclosed Flare
Make	N/A
Model	N/A
Fuel	Biogas
Biogas Flow Rate (scfh)	22,500
Higher Heating Value (Btu/scf)	482
Heat Input Rate (MMBtu/hr @ HHV)	10.85
Annual Heat Input (MMBtu/yr)	41,820
Annual Fuel Use (MMscf/yr)	86.7

	Emission Factor		Maximum Emissions	
			Hourly	Annual
Pollutant	(lb/MMscf)	Source	(lb/hr)	(ton/year)
Ammonia	3.72E-03	SJVAPCD	8.37E-05	1.61E-04
Benzene	1.33E-03	SJVAPCD	2.99E-05	5.77E-05
Chlorobenzene	3.08E-04	SJVAPCD	6.93E-06	1.34E-05
Ethyl Benzene	2.61E-02	SJVAPCD	5.87E-04	1.13E-03
Formaldehyde	1.46E+00	SJVAPCD	3.29E-02	6.33E-02
Hydrogen Sulfide	-	calc from S	2.62E-02	5.04E-02
Methyl Chloroform	4.19E-03	SJVAPCD	9.43E-05	1.82E-04
Methylene Chloride	8.67E-02	SJVAPCD	1.95E-03	3.76E-03
Perchloroethylene	2.43E-03	SJVAPCD	5.47E-05	1.05E-04
Toluene	9.59E-03	SJVAPCD	2.16E-04	4.16E-04
Vinyl Chloride	1.32E-03	SJVAPCD	2.97E-05	5.72E-05
Vinylidene Chloride	3.08E-04	SJVAPCD	6.93E-06	1.34E-05
Xylenes	5.57E-02	SJVAPCD	1.25E-03	2.42E-03
TOTAL HAPs				1.22E-01

Notes

Biogas feed rate (in dscfm) was specified by MANA.

Higher heating value (HHV, in Btu/scf) was calculated from GE engine design value (in LHV).

Maximum hourly heat input rate (in MMBtu/hr) was calculated from the biogas flow rate (in scfh) and the HHV (in Btu/scf).

Emission factors (in lb/mmcf) were obtained from San Joaquin Valley Air Pollution Control District's (SJVAPCD) air toxics emission factor database for digester gas external combustion . Available at http://www.valleyair.org/busind/pto/emission_factors/Criteria/Toxics/External%20Combustion/LandfillGasExternalCombustion.xls

Hourly emissions (in lb/hr) were calculated from the emission factor (in lb/MMBtu) and biogas consumption rate (in MMBtu).

Annual emissions (in tpy) were calculated from the emission factor (in lb/MMBtu) and the annual biogas consumption rate (in MMBtu/yr).

Total HAP emissions (in lb/yr) exclude ammonia and propylene, which are not federal HAPs.

MAXIMUM HAP EMISSIONS - AIR HEATER

Parameter	
Device	Air Heater
Make	TBD
Model	TBD
Fuel	Biogas/Propane
Biogas Flow Rate (scf/hr)	8,700
Higher Heating Value (Btu/scf)	482
Heat Input Rate (MMBtu/hr @ HHV)	4.2
Annual Biogas Use (scf)	70

Pollutant	Emission Factor		Maximum Emissions	
	(lb/MMscf)	Source	Hourly (lb/hr)	Annual (ton/year)
Ammonia	3.72E-03	SJVAPCD	3.24E-02	1.29E-04
Benzene	1.33E-03	SJVAPCD	1.16E-02	4.63E-05
Chlorobenzene	3.08E-04	SJVAPCD	2.68E-03	1.07E-05
Ethyl Benzene	2.61E-02	SJVAPCD	2.27E-01	9.08E-04
Formaldehyde	1.46E+00	SJVAPCD	1.27E+01	5.08E-02
Hydrogen Sulfide	-	calc from S	5.39E-03	2.15E-02
Methyl Chloroform	4.19E-03	SJVAPCD	3.65E-02	1.46E-04
Methylene Chloride	8.67E-02	SJVAPCD	7.54E-01	3.02E-03
Perchloroethylene	2.43E-03	SJVAPCD	2.11E-02	8.46E-05
Toluene	9.59E-03	SJVAPCD	8.34E-02	3.34E-04
Vinyl Chloride	1.32E-03	SJVAPCD	1.15E-02	4.59E-05
Vinylidene Chloride	3.08E-04	SJVAPCD	2.68E-03	1.07E-05
Xylenes	5.57E-02	SJVAPCD	4.85E-01	1.94E-03
TOTAL HAPs				7.90E-02

Notes

Fuel flow rate (in scf/min) and annual operating schedule were specifed by MANA.
Biogas density (in lb/gal) reflects typical values for propane. LHV based on GE technical engine spec.

Heat input rate (in MMBtu/hr) was calculated from the biogas flow rate and the HHV.

Emission factors (in lb/mmcf) were obtained from SJVAPCD's air toxics emission factor database for digester gas external combustion. Available at http://www.valleyair.org/busind/pto/emission_factors/Criteria/Toxics/External%20Combustion/LandfillGasExternalCombustion.xls

Hourly emissions (in lb/hr) were calculated from the emission factor (in lb/MMscf) and fuel consumption rate.

Annual emissions (in tpy) were calculated from the emission factor and annual fuel consumption from the annual operating schedule provided by MANA.

MAXIMUM HAP EMISSIONS - SLUDGE DRYER

Parameter	
Device	Dryer
Make	TBD
Model	TBD
Fuel	Unfired
Gas Flow Rate (scfh)	0
Higher Heating Value (Btu/scf)	N/A
Heat Input Rate (MMBtu/hr @ HHV)	0.0
Annual Gas Flow Rate (MMBtu/yr)	0

	Emission Factor		Maximum Emissions	
			Hourly	Annual
Pollutant	(lb/MMBtu)	Source	(lb/hr)	(lb/year)
Acetaldehyde	3.12E-06	SJVAPCD	0	0
Acrolein	2.72E-06	SJVAPCD	0	0
Ammonia	8.05E-06	SJVAPCD	0	0
Benzene	5.84E-06	SJVAPCD	0	0
Chlorobenzene	3.36E-07	SJVAPCD	0	0
Dichlorobenzene	3.02E-06	SJVAPCD	0	0
Ethylbenzene	8.62E-06	SJVAPCD	0	0
Ethylene Dichloride	2.35E-06	SJVAPCD	0	0
Formaldehyde	1.24E-05	SJVAPCD	0	0
Hexane	4.63E-06	SJVAPCD	0	0
Hydrogen Chloride	1.08E-03	SJVAPCD	0	0
Hydrogen Sulfide	3.61E-05	SJVAPCD	0	0
Methyl Ethyl Ketone	1.68E-07	SJVAPCD	0	0
Methylene Chloride	1.68E-07	SJVAPCD	0	0
Naphthalene	3.02E-07	SJVAPCD	0	0
PAHs	4.03E-07	SJVAPCD	0	0
Perchloroethylene	8.39E-07	SJVAPCD	0	0
Propylene	5.34E-04	SJVAPCD	0	0
Toluene	2.67E-05	SJVAPCD	0	0
1,1,2 Trichloroethane	1.68E-07	SJVAPCD	0	0
Trichlorethylene	5.03E-07	SJVAPCD	0	0
Xylenes	2.74E-05	SJVAPCD	0	0
TOTAL HAPs				0.00E+00

Note: HAP emissions from this source are zero as the dryer is unfired.

MAXIMUM HAP EMISSIONS - RECIPROCATING ENGINE

Parameter	
Device	Engine Generator
Engine Manufacturer	Jenbacher
Engine Model	Ecomax 10 BIO
Fuel	Biogas
Engine Output (bhp)	1,468
Biogas Flow Rate (scfh)	21,353
Higher Heating Value (Btu/scf)	482
Heat Input Rate (MMBtu/hr @ HHV)	10.30
Annual Fuel Consumption (mmcf/yr)	187

	Emission Factor		Maximum Emissions	
			Hourly	Annual
Pollutant	(lb/mmscf)	Source	(lb/hr)	(ton/year)
1,3-Butadiene	2.43E-02	SJVAPCD	5.19E-04	2.27E-03
1,4-Dioxane	8.70E-03	CATEF	1.86E-04	8.14E-04
Acetaldehyde	6.24E-02	CATEF	1.33E-03	5.84E-03
Acrolein	1.42E-02	CATEF	3.04E-04	1.33E-03
Benzene	1.70E+00	CATEF	3.63E-02	1.59E-01
Carbon tetrachloride	4.44E-03	CATEF	9.48E-05	4.15E-04
Chloroform	8.82E-03	CATEF	1.88E-04	8.25E-04
Ethylene dibromide	4.36E-03	CATEF	9.30E-05	4.07E-04
Ethylene dichloride	4.42E-03	CATEF	9.43E-05	4.13E-04
Formaldehyde	1.80E+00	CATEF	3.84E-02	1.68E-01
Hydrogen sulfide	-	calc from S	1.32E-02	5.79E-02
Methylchloroform	8.88E-03	CATEF	1.90E-04	8.30E-04
Methylene chloride	8.76E-02	CATEF	1.87E-03	8.19E-03
p-Dichlorobenzene	4.28E-02	CATEF	9.15E-04	4.01E-03
Perchloroethylene	9.00E-03	CATEF	1.92E-04	8.42E-04
Styrene	3.31E-02	CATEF	7.07E-04	3.10E-03
Toluene	7.44E-01	CATEF	1.59E-02	6.96E-02
Trichloroethylene	8.76E-03	CATEF	1.87E-04	8.19E-04
Vinyl Chloride	1.14E-02	CATEF	2.43E-04	1.07E-03
Vinylidene Chloride	4.51E-03	CATEF	9.62E-05	4.21E-04
Xylenes	1.60E-01	CATEF	3.42E-03	1.50E-02
TOTAL HAPS				0.50

Notes

Engine output (in bhp) and heat input (MMBtu/hr, LHV) specified by Jenbacher.

Higher heating value (HHV, in Btu/scf) was calculated from the LHV biogas fuel specification used by Jenbacher.

Fuel flow rate (in scfm) was calculated from the heat input rate (in MMBtu/hr @ HHV and the HHV (in Btu/scf) for the biogas.

Emission factors (in lb/MMscf) from SJVAPCD factors for digester gas fueled IC engines (available at http://www.valleyair.org/busind/pto/emission_factors/Criteria/Toxics/Internal%20Combustion/DigesterGasICEngine.xls) and from the California Air Toxics Emission Factor (CATEF) database (available at https://www.arb.ca.gov/ei/catef/catef.htm).

MAXIMUM HAP EMISSIONS - DIGESTER PLANT

Pollutant	Maximum Emissions (tons/year)					
	Feedstock Receiving	Air Heater	Flare	Dryer	Engine	Totals
1,3-Butadiene	-	-	-	-	2.27E-03	2.27E-03
1,4-Dioxane	-	-	-	-	8.14E-04	8.14E-04
Acetaldehyde	-	-	-	-	5.84E-03	5.84E-03
Acrolein	-	-	-	-	1.33E-03	1.33E-03
Ammonia	-	1.29E-04	1.61E-04	-	-	2.91E-04
Benzene	-	4.63E-05	5.77E-05	-	1.59E-01	1.59E-01
Carbon tetrachloride	-	-	-	-	4.15E-04	4.15E-04
Chlorobenzene	-	1.07E-05	1.34E-05	-	-	2.41E-05
Chloroform	-	-	-	-	8.25E-04	8.25E-04
Ethylene dibromide	-	-	-	-	4.07E-04	4.07E-04
Ethylene dichloride	-	-	-	-	4.13E-04	4.13E-04
Formaldehyde	-	5.08E-02	6.33E-02	-	1.68E-01	2.82E-01
Hydrogen sulfide	-	2.15E-02	5.04E-02	-	5.79E-02	1.30E-01
Methyl chloroform	-	1.46E-04	1.82E-04	-	-	3.27E-04
Methylene chloride	-	3.02E-03	3.76E-03	-	-	6.78E-03
Perchloroethylene	-	8.46E-05	1.05E-04	-	8.42E-04	1.03E-03
Styrene	-	-	-	-	3.10E-03	3.10E-03
Toluene	-	3.34E-04	4.16E-04	-	6.96E-02	7.03E-02
Trichloroethylene	-	-	-	-	8.19E-04	8.19E-04
Vinyl chloride	-	4.59E-05	5.72E-05	-	1.07E-03	1.17E-03
Vinylidene chloride	-	1.07E-05	1.34E-05	-	4.21E-04	4.45E-04
Xylenes	-	1.94E-03	2.42E-03	-	1.50E-02	1.93E-02
TOTAL HAPs (tons/year)	0	0.078	0.121	0	0.49	0.7
MAX HAP (tpy)						0.3

Note: Ammonia is not a HAP.

Appendix G:

Preliminary Drainage Analysis

Drainage System

Existing Setting

Currently, in the vicinity of the proposed improvements, there exists a small drainage basin that was recently constructed to mitigate the drainage effects of the new storage facility building. Onsite runoff from the proposed project site sheet flows to the low spots where is currently ponds on the project site, until it evaporates or percolates. It is estimated that the 50-year, 1-hour storm runoff of the proposed project site in its existing condition is 4.7 cubic feet per second (cfs), which amounts to a volume of 1,741 cubic feet. (See Appendix "A" - Drainage Calculations)

Potential Impacts and Mitigation Measures

In accordance with the County of Maui's drainage standards, the project's drainage system will be required to deal with the post-development increase in runoff. While the offsite runoff is not anticipated to increase after project implementation, the onsite runoff is anticipated to increase to 6.1 cfs, requiring 2,239 cubic feet of storage to mitigate the 50-year, 1-hour storm event. To accommodate the increase in drainage flows, the plan is to direct the storm water flow via above ground swales or to utilize grated catch basins and area drains to convey runoff to the existing drainage basin that will be enlarged to sufficient capacity to contain the increase in runoff volume.

Other drainage improvements may include piped systems, which may include and are not limited to catch basins, drain inlets, planter drains, and HDPE piping and fittings. These proposed drainage improvements will effectively retain storm water runoff onsite and will not impact offsite properties. While permeable pavements and vegetative strips were considered during the early stages of the project, it was

determined that the soil percolation rate would not allow the drainage system to operate effectively. Nonetheless, the proposed drainage system will be designed in accordance with Title MC-15, Subtitle 01, Chapter 4, "Rules for the Design of Storm Drainage Facilities in the County of Maui."

Best Management Practices:

Requirements for the temporary control of soil erosion and dust during construction will be outlined and shown on the construction plans during the design development of the project. Some of the requirements will be as follows:

1. Control dust by means of water trucks or by installing temporary sprinkler systems.
2. Graded areas shall be thoroughly watered after construction activity has ceased for the day and for weekends and holidays.
3. All exposed areas shall be graveled, grassed, or permanently landscaped as soon as finished grading is completed.
4. Storm runoff will be diverted away from graded areas to natural drainageways or ground during construction by means of sand bag berms or lined temporary swales.
5. Time of construction will be minimized.
6. Only areas that are needed for new improvements will be cleared.
7. Installation of sediment trapping devices such as silt fence or gravel bag berms at the downstream side of the grading area.

8. Temporary control measures shall be in place and functional prior to construction and shall remain operational throughout the construction period or until permanent controls are in place.

APPENDIX A
DRAINAGE CALCULATIONS

A. HYDROLOGY:

Methodology: Rational Method

Given Data:

Area: 54,000 s.f. = 1.24 Ac.

Type of Onsite Soil: Jaucas Sand,Saline (JcC)

Storm Runoff, P = 2.5" (50-year, 1-hour rainfall)

Drainage Calculations:

Purpose: Determine the increase in onsite surface runoff from the development of the proposed project based on a 50-year (1-hr.) storm.

1. Determine the Runoff Coefficient (C):

C = 0.90 (Industrial - Heavy Areas)

C = 0.30 (Unimproved Areas)

Existing Conditions:

Industrial Area = 30,000 Ft.^{2}

Unimproved Area = 24,000 Ft.^{2}

Total Area = 54,000 Ft.^{2}

$$C = \frac{0.90\ (30{,}000) + 0.30\ (24{,}000)}{54{,}000}$$

$C_{Existing}$ = 0.63

Developed Conditions:

Industrial Area = 45,700 Ft.^{2}

Unimproved Area = 8,300 Ft.^{2}

Total Area = 54,000 Ft.^{2}

$$C = \frac{0.90\ (45{,}700) + 0.30\ (8{,}300)}{54{,}000}$$

$C_{Developed} = 0.81$

2. Determine the 50-year, 1-hour rainfall:

i_{50} = 2.5 inches

Rainfall Intensity (I):

Existing Condition:

Length of Overland Flow		= 250 ft.
Avg. Slope		= 1%
	T_c	= 6.5 min.
	I	= 6.0 in./hr.

Developed Condition:

Length of Overland Flow		= 240 ft.
Avg. Slope		= 1%
	T_c	= 6.4 min.
	I	= 6.1 in./hr.

3. Drainage Area (A) = 1.24 Acres

4. Compute the 50-year storm volume (Q):

Q = CIA

Existing Conditions:

Q = (0.63) (6.0) (1.24)

= 4.7 cfs

Developed Conditions:

Q = (0.81) (6.1) (1.24)

= 6.1 cfs

The increase in runoff due to the proposed development is 6.1 - 4.7 = 1.4 cfs

Finally, the anticipated storm water volume increase is 498 cubic feet.

STORM WATER QUALITY CALCULATIONS

Purpose: Determine the storage volume required for detention based control for storm water quality.

A. Determine the Runoff Coefficient (C):

$C = 0.05 + (0.009 \times IMP)$

IMP = Impervious Area in percentage

= 15%

$C = 0.05 + (0.009 \times 15)$

$= 0.19$

B. Drainage Area (A) = 1.24 Acres

C. Compute Water Quality Design Volume (WQDV):

$WQDV = C \times 1'' \times A \times 3630$

$= (0.19)\ (1)\ (1.24)\ (3630)$

$= 855$ c.f.

Thus, the anticipated storm water volume required for detention based control for storm water quality (855 $ft.^3$) exceeds the anticipated storm water volume increase, so the additional proposed capacity in the existing drainage basin shall be a minimum of 855 cubic feet.

Hydrograph Plot

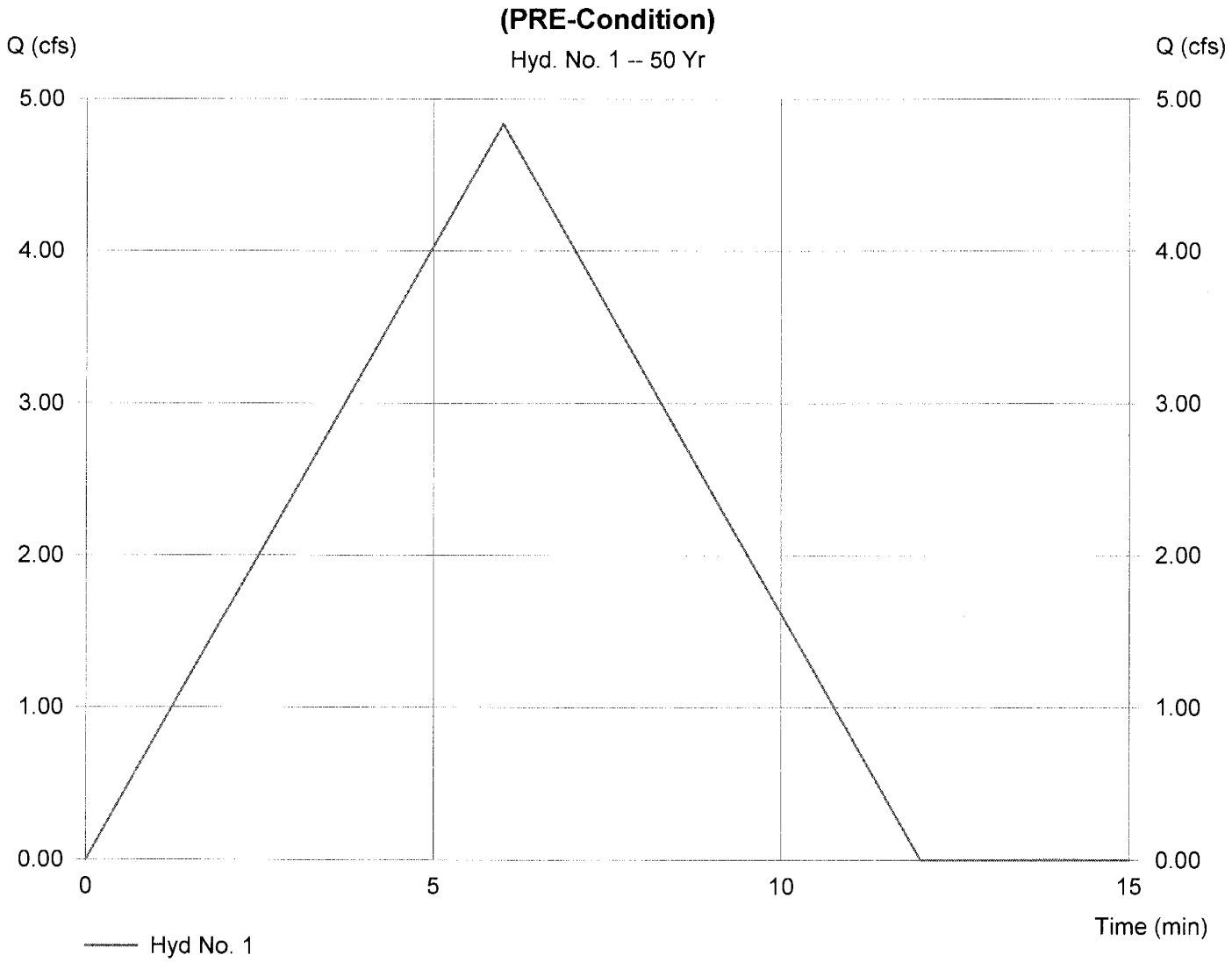
Hydraflow Hydrographs by Intelisolve | Friday, Nov 10 2017, 10:13 AM

Hyd. No. 1

(PRE-Condition)

Hydrograph type	= Rational	Peak discharge	= 4.84 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 1.240 ac	Runoff coeff.	= 0.63
Intensity	= 6.191 in/hr	Tc by User	= 6.00 min
IDF Curve	= KAHULUI WWRF.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 1,741 cuft



Hydrograph Plot

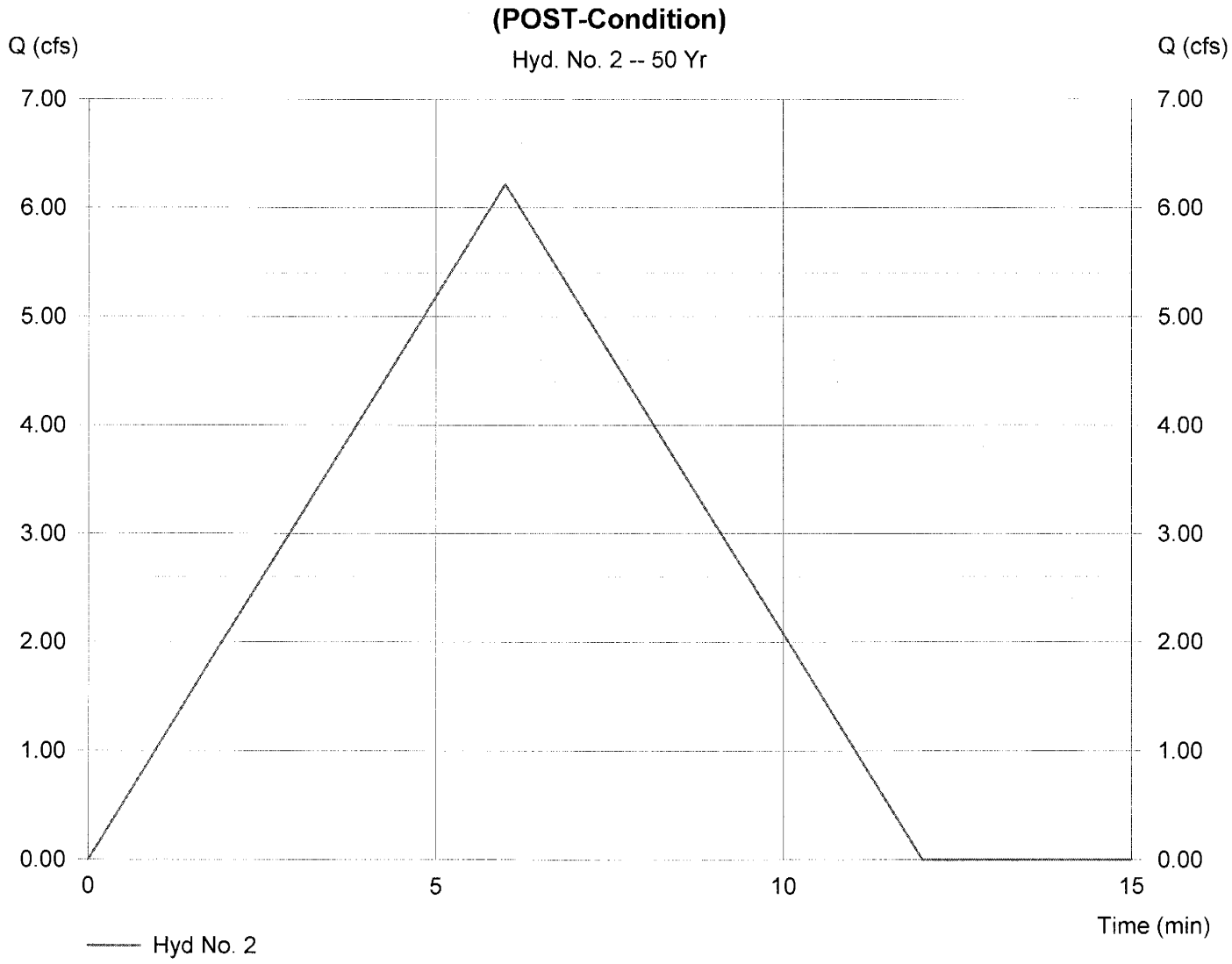
Hydraflow Hydrographs by Intelisolve | Friday, Nov 10 2017, 10:13 AM

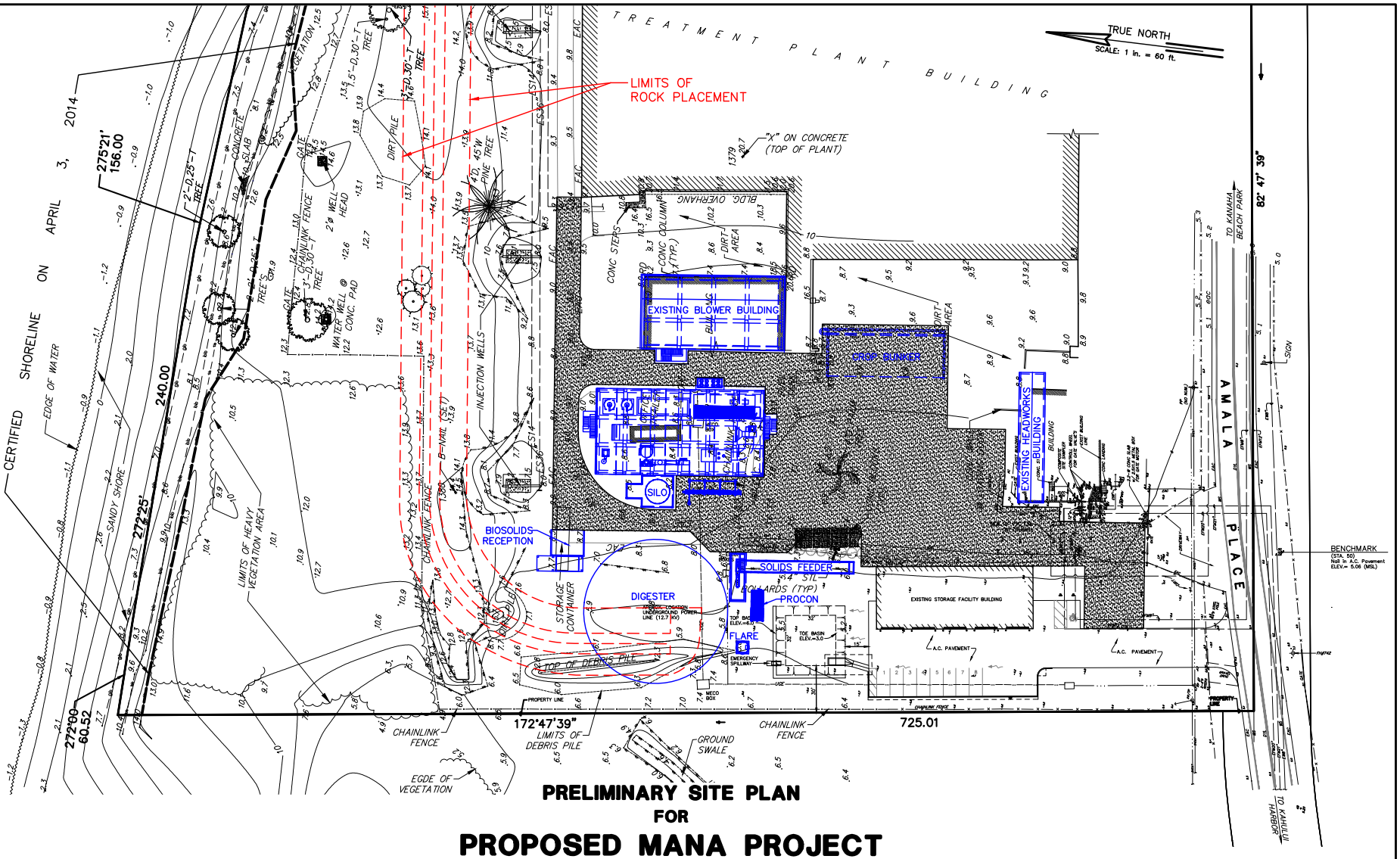
Hyd. No. 2

(POST-Condition)

Hydrograph type	= Rational	Peak discharge	= 6.22 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 1.240 ac	Runoff coeff.	= 0.81
Intensity	= 6.191 in/hr	Tc by User	= 6.00 min
IDF Curve	= KAHULUI WWRF.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 2,239 cuft





PRELIMINARY SITE PLAN
FOR
PROPOSED MANA PROJECT
RENEWABLE ENERGY CONVERSION AND SLUDGE PROCESSING FOR THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY
AT KAHULUI, MAUI, HAWAII

TAX MAP KEY: (2) 3-8-01:188

NOVEMBER 16, 2017

JOB NO. 17-068

Tax Map Key: (2) 3-8-01:188

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.
LAND SURVEYORS – CIVIL & STRUCTURAL ENGINEERS

Appendix H:

Comment Letters Received Following Publication of the EISPN and Responses

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

APR 10 2017

In Reply Refer To:
01EPIF00-2017-TA-0467

Mr. Jeff Walsh
Project Business Development Manager, MANA LLC
C/O Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii, 96793

Subject: Technical Assistance for Incorporation of a Renewable Energy and Sludge Processing Facility at the Wailuku-Kahului Wastewater Reclamation Facility in Kahului, County of Maui, Hawaii.

Dear Mr. Walsh:

The U.S. Fish and Wildlife Service (Service) received your correspondence on March 6, 2017, requesting consultation to incorporate a renewable energy and sludge processing facility at the Wailuku-Kahului Wastewater Reclamation Facility in Kahului. Maui All Natural Alternative LLC (MANA), under the contract of the County of Maui, will install an anaerobic digester and associated appurtenances onsite, which will digest energy crops grown on former plantation lands and sources from Central Maui Feedstocks LLC. The primary product of this digestion process is a renewable natural gas (biogas) which is further refined and used to fuel a combined head and power (CHP) engine for power generation. Waste heat derived from the combustion of the renewable fuel from the CHP combined with biogas fuel will provide the required heat for the sewage sludge processing plus drying all of the municipal solid sludge produced on Maui. The Service offers the following comments to assist you in your planning process so that impacts to trust resources can be avoided through site preparation, construction, and operation. Our comments are provided under the authorities of the Endangered Species Act of 1973 (ESA), as amended (16 U.S.C 1531 *et seq.*).

Based on information you provided in the Special Permit Application and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Project, there are six listed animal species in the vicinity of the project area: The federally endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), Hawaiian petrel (*Pterodroma sandwichensis*), band-rumped storm-petrel (*Oceanodroma castro*), the threatened Newell's shearwater (*Puffinus auricularis newelli*), Hawaiian stilt (*Himantopus mexicanus knudseni)*, and the Hawaiian coot (*Fulica alai*). There are also two endangered insects, the yellow-faced bee *(Hylaeus* spp.) and the Blackburn's sphinx moth (*Manduca blackburni).* Additionally, designated critical habitat for

the Blackburn's sphinx moth is adjacent to the project site as well as Kanaha wetlands, habitat for Hawaiian waterbirds.

The Service recommends the following measures to avoid and minimize project impacts to the following listed species:

Hawaiian hoary bat
The endangered Hawaiian hoary bat may be present within the proposed project area. The Hawaiian hoary bat roosts in both exotic and native woody vegetation and will leave young unattended in "nursery" trees and shrubs when they forage. If trees or shrubs suitable for bat roosting are cleared during the pupping season, there is a risk that young bats could inadvertently be harmed or killed. To minimize impacts to the endangered Hawaiian hoary bat, woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15). Additionally, Hawaiian hoary bats forage for insects from as low as three feet to higher than 500 feet (152 meters) above the ground. When barbed wire is used in fencing, Hawaiian hoary bats can become entangled. Therefore, the Service recommends barbed wire not be used for fencing.

Hawaiian petrel, Newell's shearwater, and band-rumped storm petrel
Hawaiian seabirds may traverse the project area at night during the breeding season. Outdoor lighting could result in seabird disorientation, fallout, and injury or mortality. Seabirds are attracted to lights and after circling the lights they may collide with nearby wires, buildings, or other structures or they may land on the ground due to exhaustion. Downed seabirds are subject to increased mortality due to collision with automobiles, starvation, and predation by dogs, cats, and other predators. Young birds (fledglings) traversing the project area between September 15 and December 15, in their first flights from their mountain nests to the sea, are particularly vulnerable. To minimize potential project impacts to seabirds during their breeding season, all outdoor lights should be fully shielded so the bulb can only be seen from below bulb height and only used when necessary. Automatic motion sensor switches and controls should be installed on all outdoor lights or lights should be turned off when human activity is not occurring in the lighted area. Any increase in night-time lighting, particularly during each year's peak fallout period (September 15 through December 15), could result in seabird injury or mortality. Nighttime construction should be avoided during the seabird fledging period, September 15 through December 15.

Yellow-faced bees
Habitat destruction and modification and land use conversion leads to fragmentation of foraging and nesting areas of these yellow-faced bee species. Habitat destruction and modification by nonnative plants adversely impact native Hawaiian plant species by modifying the availability of light, altering soil-water regimes, modifying nutrient cycling, altering the fire characteristics (increasing the fire cycle), and ultimately converting native dominated plant communities to nonnative plant communities; such habitat destruction and modification result in removal of food sources and nesting sites for the listed yellow-faced bee. To minimize potential adverse effects to these species, we recommend you restrict vehicle use to existing roads and trails. If vegetation must be cut or removed from an area outside existing developed ground, a survey should be conducted on the proposed project site for *Hylaeus* nests and avoid disturbance to the nest site.

Avoid cutting or removing plants in the *Sida* genus (ilima). Restore cleared areas using native vegetation where possible.

Blackburn's sphinx moth

The Blackburn's sphinx moth occur on the islands of Maui, Lanai, Kahoolawe, and the Island of Hawaii. The adult moth feeds on nectar from native plants including beach morning glory (*Ipomoea pes-caprae*), iliee (*Plumbago zeylanica*), maiapilo (*Capparis sandwichiana*). Blackburn's sphinx moth larvae feed upon non-native tree tobacco (*Nicotiana glauca*), which occupies disturbed areas such as open fields and roadway margins, and the native aiea (*Nothocestrum* spp.). We recommend that a biologist with Blackburn's sphinx moth experience survey the project area for the presence of adult and larval host plants. To pupate, Blackburn's sphinx moth larvae burrow into the soil near host plants and can remain in a state of torpor for up to a year (or more) before emerging from the soil. To minimize the potential for the project to adversely impact the Blackburn's sphinx moth, host plants should not be cut or removed and the soil within 33 feet (10 meters) of the host plants should not be disturbed. If occupied host plants are found within the project area, we recommend you contact us as soon as possible so we may assist you with additional measures to avoid impacts to this species in your project description.

If the proposed project requires gravel or dirt fill to be used at the project location, the Service recommends getting the fill from a source that is certified weed free or a plant survey be conducted around the area where the fill will be extracted. The survey is a measure to avoid spreading non-native tree tobacco and other invasive plant species from where the fill is removed to the proposed project area. Non-native tree tobacco and other invasive species seeds could be found in the fill and unknowingly spread to the project area thus attracting Blackburn's sphinx moth to the project site and increasing the risk of future take.

Hawaiian stilt and Hawaiian coot

Listed Hawaiian waterbirds are found in fresh and brackish-water marshes and ponds. Threats to these species include habitat loss and habitat degradation. We recommend you incorporate the following measures into your project description to avoid and minimize impacts to listed Hawaiian waterbirds:

1.) A biological monitor should conduct Hawaiian waterbird and nest surveys at the proposed project site prior to project initiation, and after any subsequent delay of three or more days (during which the birds may attempt to nest).

2.) Any documented nests or broods within the project vicinity should be reported to the Service within 48 hours.

3.) A 100-foot buffer should be established and maintained around all active nests and/or broods until the chicks/ducklings have fledged. No potentially disruptive activities or habitat alteration should occur within this buffer.

4.) A biological monitor(s) should be present on the project site during all construction or earth moving activities to ensure that Hawaiian waterbirds and nests are not adversely impacted.

5.) If a listed Hawaiian waterbird is observed within the project site, or flies into the site while

activities are occurring, the biological monitor should halt all activities within 100 feet of the individual(s). Work should not resume until the Hawaiian waterbird(s) leave the area on their own accord.

6.) If surveys indicate nests or broods are present within the project vicinity, the Service should be notified immediately prior to project initiation and provided with the results of pre-construction Hawaiian waterbird surveys. In addition, a post-construction report should be submitted to the Service within 30 days of the completion of the project. The report should include the results of Hawaiian waterbird surveys, the location and outcome of documented nests, and any other relevant information.

The Service appreciates efforts of Maui County to reclaim sewage sludge for use as fertilizer, and recommends, in an effort to protect the environment where fertilizer is applied, that sewage sludge and produced fertilizer comply with the contaminant provisions of 40 CFR 503.

Thank you for participating with us in the protection of our endangered species. If you have any further questions or concerns regarding this consultation, please contact Eldridge Naboa, Fish and Wildlife Biologist, 808-792-9451, e-mail: eldridge_naboa@fws.gov. When referring to this project, please include this reference number: ***01EPIF00-2017-TA-0467***.

Sincerely,

Michelle Bogardus
Island Team Manager
Maui Nui and Hawaii Island

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Ms. Michelle Bogardus, Maui Nui Island Team Manager
Fish and Wildlife Service
Pacific Island Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, HI 96850

SUBJECT: April 10, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project
Reference Number: 01EPIF00-2017-TA-0467

Dear Ms. Bogardus:

Thank you also for providing your April 10, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. A Biological Survey and Assessment was prepared for this project by a qualified, local, wildlife biologist and is included in the Draft EIS. In addition, the mitigation measures you provided for the Hawaiian hoary bat are included in the Draft EIS and will be implemented during construction.

2. The yellow-faced bee or its habitat was not observed during the biological survey. In any case, vehicles will utilize existing roads and driving surfaces within the WKWWRF. Further, ilima cutting and removing will be avoided (though no ilima plants were observed during the biological survey) and installed landscaping will utilize native vegetation as much as possible.

3. No Blackburn's sphinx moth or its habitat was observed during the biological survey. Only one juvenile tobacco tree was found with no evidence of the moth or its larvae. Fill material is anticipated to be limited to utilization of excavated material from the existing site, to minimize introduced soil to the project site.

4. The mitigation measures noted for waterbirds are included in the Draft EIS and will be implemented during construction.

5. MANA will ensure that the dried wastewater sludge fertilizer complies with the provisions of 40 CFR 503.

MANA
MAUI ALL NATURAL ALTERNATIVE

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

OFFICE OF PLANNING
STATE OF HAWAII

DAVID Y. IGE
GOVERNOR

LEO R. ASUNCION
DIRECTOR
OFFICE OF PLANNING

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

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

Ref. No. P-15558

April 7, 2017

Mr. Jeff Walsh
Project Business Development Manager, MANA LLC
C/O Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

Dear Mr. Walsh:

Subject: Early Consultation Request, Wailuku-Kahului Wastewater Reclamation Facility, Energy Independence Project, 281 Amala Place, Kahului, Maui, Hawaii; TMK: (2) 3-8-001: 188 (por)

Thank you for the opportunity to provide comments on this early consultation request for the Wailuku-Kahului Wastewater Reclamation Facility, Energy Independence project. The early consultation review material was transmitted to our office via letter dated February 28, 2017.

It is our understanding that the County of Maui, Department of Environmental Management, proposes a renewable energy and sludge processing facility at its Wailuku-Kahului Wastewater Reclamation Facility in Kahului. The anaerobic digester will produce renewable natural biogas which will be further refined and used to fuel a combined heat and power engine for power generation.

The project site will be located in an area that will not interfere with the daily functions of the wastewater treatment. The entire facility will be housed in existing buildings or in new structures on existing paved areas within the confines of the Wailuku-Kahului Wastewater Reclamation Facility.

The Office of Planning (OP) has reviewed the transmitted material and has the following comments to offer:

1. Pursuant to Hawaii Administrative Rules (HAR) § 11-200-10(4) – general description of the action's technical, economic, social, and environmental characteristics; this project must demonstrate that it is consistent with a number of state environmental, social, economic goals, and policies for land use. Hawaii Revised Statutes (HRS) Chapter 226, the Hawaii State Planning Act, provides goals, objectives, policies, and

priority guidelines for growth, development, and the allocation of resources throughout the state in areas of state interest.

The analysis on the Hawaii State Planning Act should include a discussion on the project's ability to meet all of the goals, objectives, policies, and priority guidelines or clarify where it is in conflict with them. If any of these themes are not applicable to the project, the Draft EA should affirmatively state such determination followed by discussion paragraphs.

2. Based on information available to OP, the project site is within close proximity to the shoreline of Kahului Bay and therefore this facility may be vulnerable to ocean based environmental hazards. HRS § 226-109(7) seeks to promote sector resilience in areas such as water, roads, airports, and public health, by encouraging the identification of climate change threats, assessment of potential consequences, and evaluation of adaption options. The Draft EA should include an analysis on coastal hazards and consider adaptation options and safeguards.

3. The coastal zone management (CZM) area is defined as "all lands of the State and the area extending seaward from the shoreline to the limit of the State's police power and management authority, including the U.S. territorial sea" (see HRS § 205A-1).

   HRS Chapter 205A-5(b) requires all state and county agencies to enforce the CZM objectives and policies. The Draft EA should include an assessment as to how the proposed action conforms to the goals and objectives of the Hawaii CZM program as listed in HRS § 205A-2. Compliance with HRS § 205A-2 is an important component for satisfying the requirements of HRS Chapter 343.

4. The project site is located within the Special Management Area (SMA) of the County of Maui. The proposed action will be subject to the rules and regulations governing SMA use. Please consult with the County of Maui, Department of Planning on the procedures for SMA permitting.

5. Pursuant to HAR § 11-200-10(6) – identification and summary of impacts and alternatives considered; in order to ensure that the water and marine resources of the Island of Maui remain protected, the negative effects of stormwater inundation caused by the proposed development activities should be evaluated in the Draft EA.

The Draft EA should examine potential benefits and/or negative impacts resulting from this project on coastal and marine resources. Issues that may be examined in the Draft EA include, but are not limited to, project site characteristics in relation to flood prone areas and stormwater control drainage systems. These items, as well as the marine water quality classification, should be considered when developing mitigation measures to protect the coastal ecosystem.

The Draft EA should examine the cumulative impact on coastal resources from land-based polluted runoff. It should take into account any of the natural features in the area, undeveloped open spaces, down-sloping topography, hardened non-permeable surfaces that have a cumulative effect on the volume and speed of storm runoff, and soil absorption rates.

OP has a number of resources available to assist in practices which ensure stormwater management on land, thus protecting the nearshore environment. OP recommends consulting these guidance documents and stormwater evaluative tools when developing strategies to address polluted runoff. They offer useful techniques to keep land-based pollutants and sediment in place and prevent contaminating nearshore waters, while considering the practices best suited for this project. The evaluative tools that should be used during the design process include:

- Hawaii Watershed Guidance provides direction on mitigation strategies for urban development activities that will safeguard fragile watersheds and implement watershed plans. Section 5.3, B, Urban Runoff, page 122 has information on site development and existing development management measures. http://files.hawaii.gov/dbedt/op/czm/initiative/nonpoint/HI Watershed Guidance Final.pdf

- Stormwater Impact Assessments can be used to identify and evaluate information on hydrology, stressors, sensitivity of aquatic and riparian resources, and management measures to control runoff, as well as consider secondary and cumulative impacts to the area http://files.hawaii.gov/dbedt/op/czm/initiative/stomwater_imapct/final_stormwater_impact_assessments_guidance.pdf

- Low Impact Development (LID), A Practitioners Guide covers a range of structural best management practices for stormwater control management, onsite infiltration techniques, water reuse methods, and building layout

designs that minimize negative environmental impacts
http://files.hawaii.gov/dbedt/op/czm/initiative/lid/lid_guide_2006.pdf

If you have any questions regarding this comment letter, please contact Joshua Hekekia of our office at (808) 587-2845.

Sincerely,

Leo R. Asuncion
Director

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Mr. Leo R. Asuncion, Director
State of Hawaii, Office of Planning
P.O. Box 2359
Honolulu, HI 96804

SUBJECT: April 7, 2017 Comment Letters Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Mr. Asuncion:

Thank you also for providing your April 7, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. The proposed project will comply with HAR Chapter 11-200 and HRS Chapter 226, related to the technical, economic, social, and environmental characteristics and the Hawaii State Planning Act, respectively. The Draft EIS prepared for the project details the project's environmental, technical, social, and economic characteristics, as well as land use policies and controls.

2. The Draft EIS contains an analysis of natural hazards that can be anticipated. The project design will be fortified to satisfy 44 CFR and County of Maui building standards in the flood zone.

3. The proposed project is located in the Coastal Zone Management (CZM) area as defined in HRS Chapter 205A. The Draft EIS includes a discussion on CZM and applicable impacts and mitigation measures

4. The proposed project is located within the County of Maui Special Management Area (SMA). Consequently, the Draft EIS includes an SMA discussion. MANA will pursue an SMA use permit during the land use entitlement process.

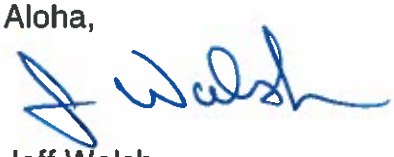
5. The Draft EIS contains a description of the affected environment, an analysis of potential impacts and mitigation measures (including impacts to water and the marine environment), and alternatives considered. The Draft EIS also contains an analysis of cumulative impacts resulting from the proposed project.

6. MANA has consulted with the stormwater guidance documents provided and has incorporated applicable elements into the Draft EIS, the project's best management practices for construction, and the project design.

MANA
MAUI ALL NATURAL ALTERNATIVE

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,



Jeff Walsh

DAVID Y. IGE
GOVERNOR
STATE OF HAWAII

SHAN S. TSUTSUI
LT. GOVERNOR
STATE OF HAWAII

JOBIE M. K. MASAGATANI
CHAIRMAN
HAWAIIAN HOMES COMMISSION

WILLIAM J. AILA, JR.
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P. O. BOX 1879
HONOLULU, HAWAII 96805

October 6, 2017

Jeff Walsh
Project Business Development Manager
MANA LLC
c/o County of Maui Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, Maui, Hawaii, 96703

Aloha Mr. Walsh:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN) FOR MAUI ALL NATURAL ALTERNATIVE LLC'S PROJECT FOR PRODUCTION OF RENEWABLE ELECTRICAL ENERGY AND PROVISION OF SLUDGE DRYING SERVICES AT THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACLITY

The Department of Hawaiian Homelands (DHHL) has reviewed the above referenced EISPN and offers the following information and comments that should be addressed in the Draft EIS.

DHHL owns four parcels of land in Pūlehunui, Central Maui. DHHL intends to facilitate the eventual development of three parcels (Pūlehunui North) for commercial and industrial use in an area totaling approximately 184 acres, consistent with our Maui Island Plan. The majority of the fourth parcel (Pūlehunui South) is intended to continue to accommodate agricultural. Consistent with our DHHL Maui Island Plan, an approximately 100-acre portion of the parcel is being considered for eventual industrial use and/or supporting regional infrastructure, pending a regional planning effort by DHHL[1]. Refer to the attached Location Map.

[1] The regional planning effort will be carried out in a manner consistent with the 2014 Memorandum of Understanding (MOU) between DHHL, the Department of Land and Natural Resources, the Department of Public Safety, and the Department of Accounting and General Services wherein these parties agreed to "make their best efforts to work in a collaborative manner". The MOU was intended to allow the parties to benefit from economies of scale, joint infrastructure financing, planning and development, and provide significant economic benefits to the Maui community.

DHHL is undertaking a regional infrastructure master plan to assess the feasible infrastructure alternatives to serve the planned industrial/commercial growth on various State-owned lands in Pūlehunui. One alternative to be evaluated is a potential sub-regional wastewater treatment facility (WWTF). The WWTF could serve multiple State projects in the area, and would have long-term potential to generate a reliable supply of wastewater biosolids.

Therefore, we recommend that Mana's EIS address potential synergies with operations at a sub-regional WWTF, particularly in the following capacities:

1. The August 2017 EISPN states that a project goal is "...to provide drying services for all the municipally generated wastewater sludge on Maui." (p. 2) Further, the EISPN states that "Recovery heat...from the CHP combined with biogas fuel will provide heat for the drying of all the municipally generated wastewater sludge produced on Maui." (p. 3)

   Please clarify whether the proposed facility could accept any biosolids produced on the island of Maui, including those from a privately-owned wastewater treatment facility.

2. If the proposed facility would potentially have capacity to accept wastewater biosolids from an outside WWTF, we request that MANA describe the detailed workings of the proposed facility including:

   A. Whether biosolids must be stabilized through aerobic or anaerobic digestion before acceptance;
   B. The solids percentage of the biosolids accepted by the proposed facility;
   C. Whether the proposed facility would accept biosolids facility from an aerobic facility;
   D. Whether the proposed facility would accept biosolids daily or on a set schedule;
   E. Whether the proposed facility will have a holding tank where outside delivery of biosolids can be stored, or other means to accept biosolids, in the event the process must be taken down due to maintenance or equipment malfunction; and
   F. The expected date that this proposed facility would be able to accept outside biosolids.

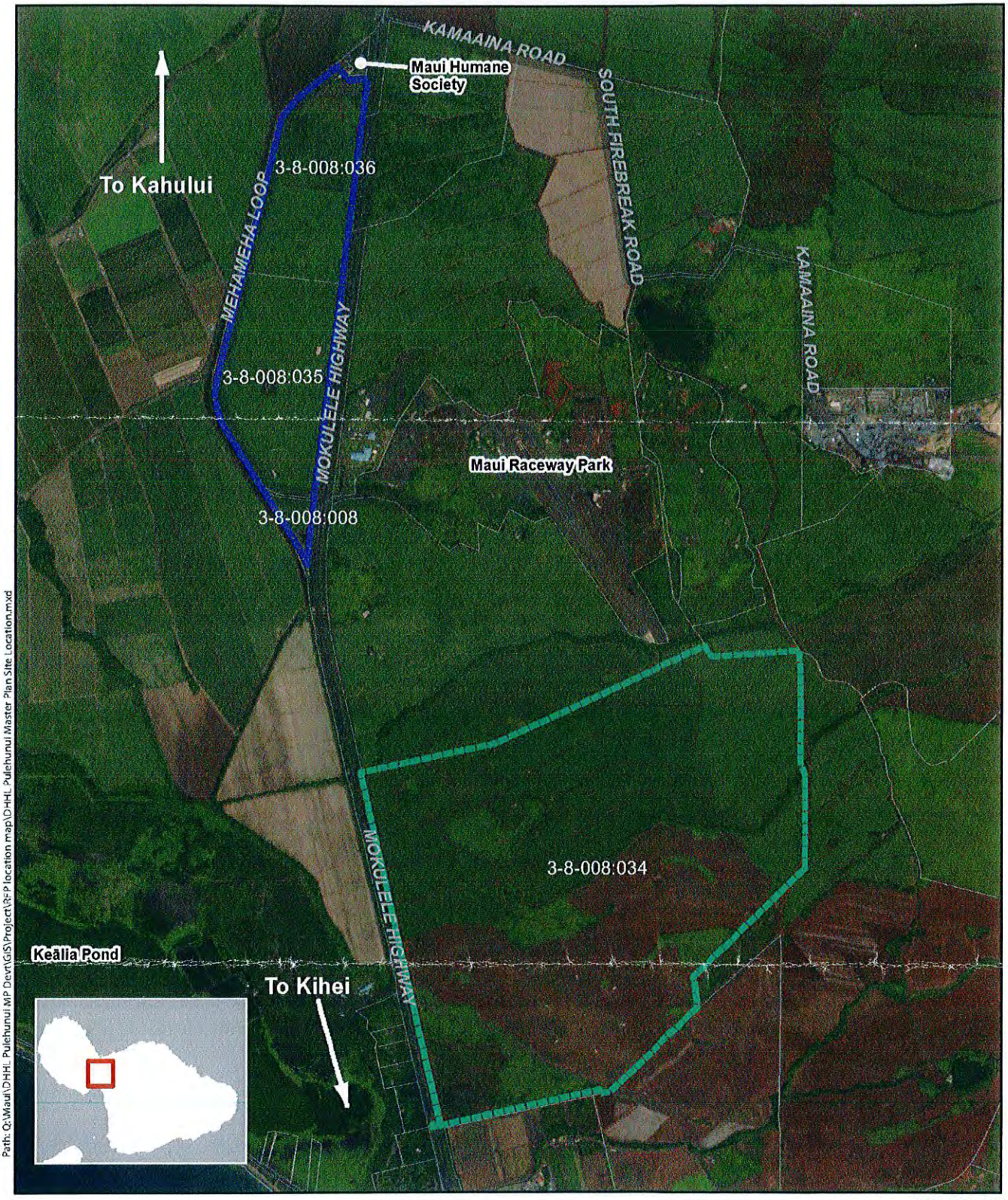
We appreciate the opportunity to comment on this EISPN. Should you have any questions on the above or need more detailed information, please contact Kaleo Manuel, Acting Planning Program Manager at Kaleo.L.Manuel@hawaii.gov.

Aloha,

Jobie M. K. Masagatani, Chairman
Hawaiian Homes Commission

Enclosure: DHHL Pūlehunui Location Map

cc: Department of Land and Natural Resources Land Division
Department of Public Safety
Department of Accounting and General Services



PDF - Q:\Maui\DHHL Pulehunui MP Devt\pdf
Path: Q:\Maui\DHHL Pulehunui MP Devt\GIS\Project\R=Plocation map\DHHL Pulehunui Master Plan Site Location.mxd

DATE: 9/6/2017

LEGEND

- Pulehunui North, total 184 ac.
- Pulehunui South, 646 ac.
- TMK Parcels

Location Map

DHHL PŪLEHUNUI MASTER PLAN

Department of Hawaiian Home Lands — Island of Maui

North — Linear Scale (feet) 0 500 1000 2000

PBR HAWAII & ASSOCIATES, INC.

Source: Basemap: County of Maui, 2017. NRCS aerial image.

Disclaimer: This graphic has been prepared for general planning purposes only and should not be used for boundary interpretations or other spatial analysis.

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Mr. Jobie Masagatani, Chairman
State of Hawaii, Department of Hawaiian Home Lands
P.O. Box 1879
Honolulu, HI 96805

SUBJECT: October 6, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Mr. Masagatani:

Thank you also for providing your October 6, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. The proposed project may be upsized to accommodate the wastewater sludge generated at a privately-owned wastewater treatment facility. DHHL should communicate with the County of Maui, Department of Environmental Management (DEM) as allowance and acceptance of private wastewater sludge is under the purview of the DEM. MANA will advise the DEM of DHHL's potential interest in processing its sludge at the proposed facility.

2. Before engaging in the specific details of the characteristics of the sludge that may be accepted, MANA recommends that DHHL receive the DEM's general approval of sludge acceptance. MANA would prefer that the DHHL sludge be as similar to the DEM sludge in composition as possible to minimize disturbance in operations. MANA is happy to participate in discussions between DHHL and the DEM.

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

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DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

EPO 17-150

July 24, 2017

Mr. Stewart Stant, Director
County of Maui
Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793
Email: stewart.stant@co.maui.hi.us

Dear Mr. Stant:

SUBJECT: Draft Environmental Assessment (DEA) for Renewable Energy Conversion and Sludge Processing for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF)
TMK: (2) 3-8-001:188 (portion)

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEA to our office via the OEQC link:
http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-06-23-MA-EISPN-Renewable-Energy-Conversion-and-Sludge-Processing-for-the-Wailuku-Kahului-WWRF.pdf

We understand from the OEQC publication form project summary that *"The County selected Maui All Natural Alternative, LLC ("MANA") at the conclusion of an RFP process for a renewable energy and sludge drying solution. MANA proposed to install an anaerobic digester and associated appurtenances onsite, which will anaerobically digest energy crops grown on former Hawaiian Commercial & Sugar (HC&S) plantation lands and sourced locally from Central Maui Feedstocks, LLC. The product of the anaerobic digestion process is renewable methane in the form of biogas that is treated on site and used to fuel a combined heat and power (CHP) engine for electrical power generation. Waste heat from the CHP with additional biogas will provide the required heat for the drying of all the municipally generated wastewater biosolids produced on Maui. The Project is not designed to export electrical energy to the grid. The entire facility will be located on the west side of the existing aerobic blower building and well within the confines of the WKWWRF. All energy crops will be grown on existing agricultural land.*
The Project goals are to provide locally sourced renewable energy to assist the County of Maui in achieving its renewable goals and to provide a long term sustainable solution for biosolids management."

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments and available strategies to support sustainable and healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments. EPO has recently updated the environmental Geographic Information System (GIS) website page. It now compiles various maps and viewers from our environmental health programs. The eGIS website page is continually updated so please visit it regularly at: http://health.hawaii.gov/epo/egis

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

Please note that all wastewater plans must conform to applicable provisions (HAR, Chapter 11-62, "Wastewater Systems"). We reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please review online guidance at: http://health.hawaii.gov/wastewater and contact the Planning and Design Section of the Wastewater Branch (WWB) at (808) 586-4294.

Any construction waste generated by the project that is not a hazardous waste as defined in state hazardous waste laws and regulations, needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the C&D Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb. For specific questions call (808) 586-4226.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: http://health.hawaii.gov/irhb/noise EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions.

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed a new environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www.epa.gov/ejscreen.

Hawaii's climate is changing. Sea level rise and the associated coastal impacts have the potential to harm an array of natural and built environments in Hawaii. For additional information on projected sea level rise in Hawaii, EPO recommends that you visit the following informative links:

- State of Hawaii Climate Adaptation Portal: http://climateadaptation.hawaii.gov
- University of Hawaii, Manoa, School of Ocean and Earth Sciences and Technology, Coastal Geology Group: http://www.soest.hawaii.edu/coasts/index.html

We request that you utilize all this information on your proposed project to increase sustainable, innovative, inspirational, transparent and healthy design. Thank you for the opportunity to comment.

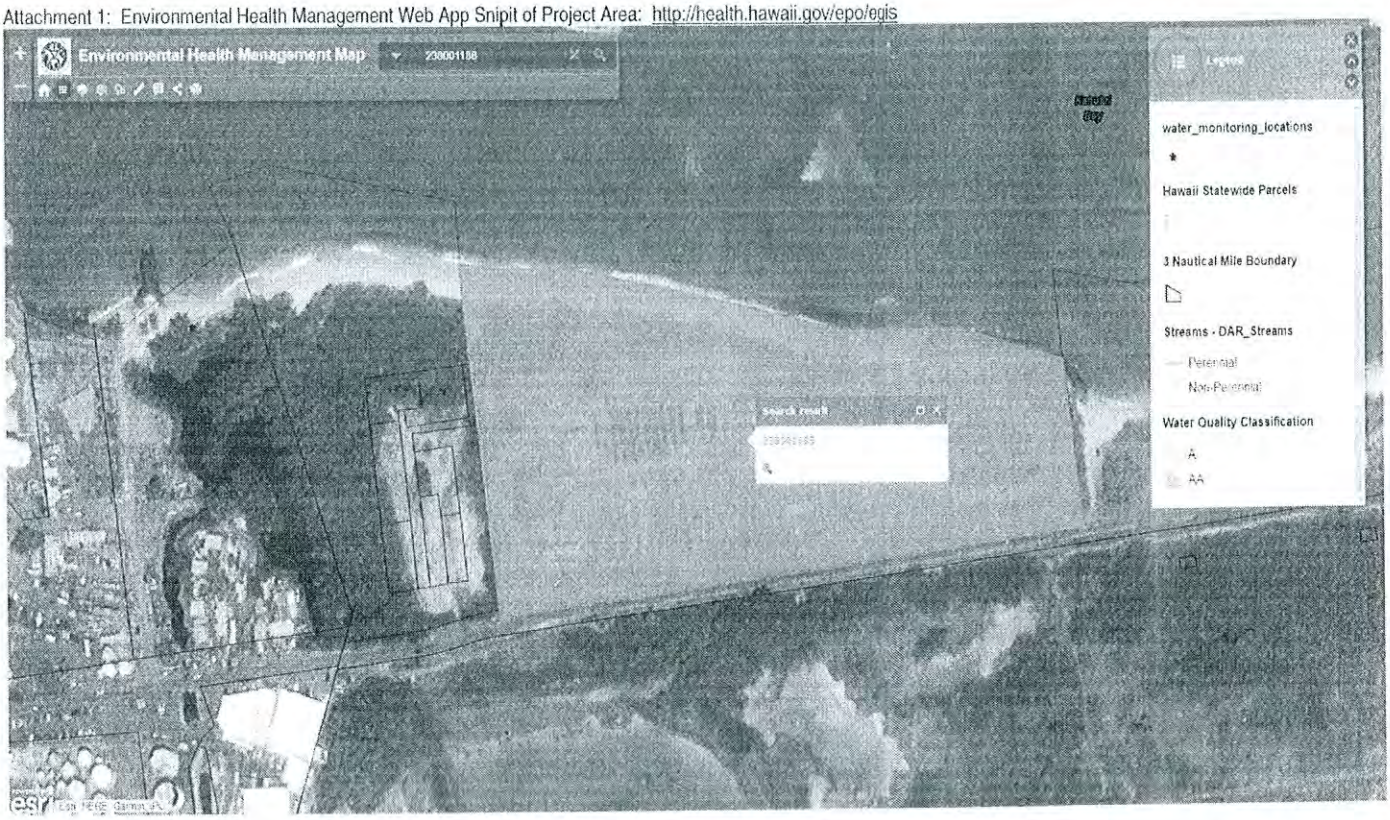
Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Program Manager, Environmental Planning Office
LM:nn

Attachment 1: Environmental Health Management Web App Snipit of Project Area: http://health.hawaii.gov/epo/egis
Attachment 2: Clean Water Branch: Water Quality Standards Map - Maui
Attachment 3: U.S. EPA EJSCREEN Report for Project Area

c: Jeff Walsh, Maui All Natural Alternative, LLC (MANA) (via email: jeff.walsh@anaergia.com)
DOH: DHO Maui, WWB, CWB, SHWB, CAB, & IRHB (via email only)

Attachment 1: Environmental Health Management Web App Snipit of Project Area: http://health.hawaii.gov/epo/egis



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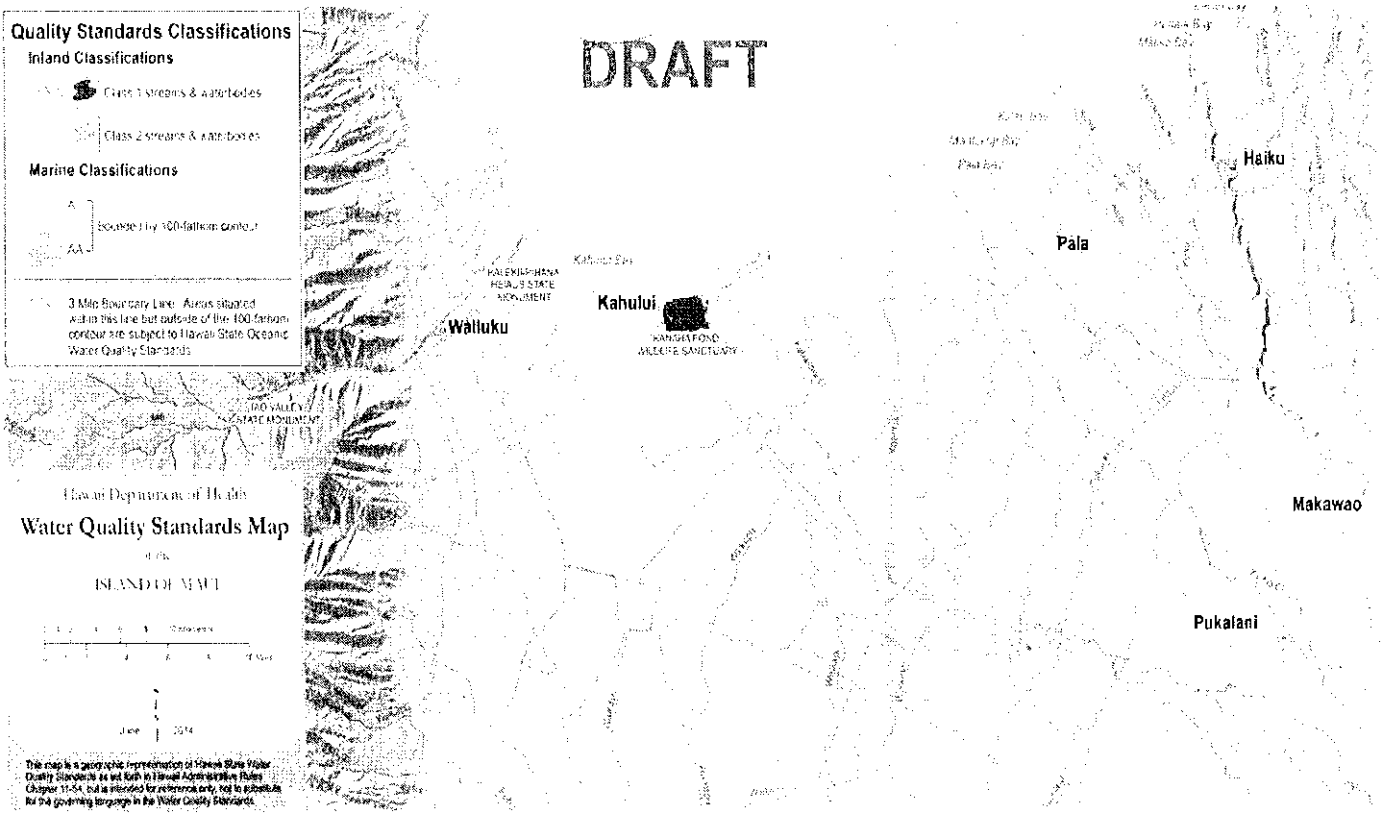
Attachment 2: Clean Water Branch: Water Quality Standards Map - Maui



Attachment 3: U.S. EPA EJSCREEN Report for Project Area

EPA

EJSCREEN Report (Version 2016)

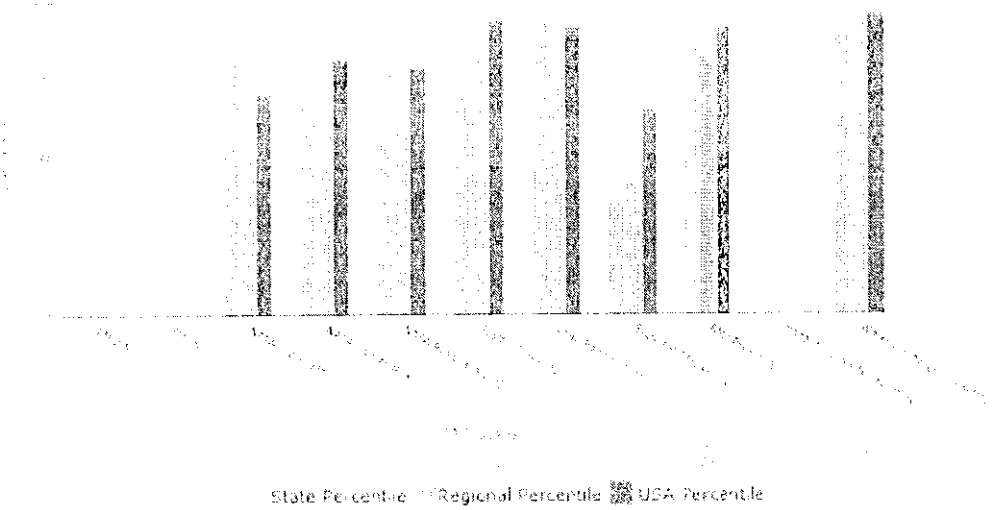
1 mile Ring Centered at 20.896116,-156.456842, HAWAII, EPA Region 9

Approximate Population: 882

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	88	51	70
EJ Index for NATA* Air Toxics Cancer Risk	73	64	81
EJ Index for NATA* Respiratory Hazard Index	80	61	73
EJ Index for Traffic Proximity and Volume	81	81	93
EJ Index for Lead Paint Indicator	94	84	91
EJ Index for Superfund Proximity	35	44	65
EJ Index for RMP Proximity	95	82	91
EJ Index for Hazardous Waste Proximity*	N/A	N/A	N/A
EJ Index for Water Discharger Proximity	91	96	95

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US



State Percentile Regional Percentile USA Percentile

June 29, 2017 1/3

EPA

EJSCREEN Report (Version 2016)

1 mile Ring Centered at 20.896116,-156.456842, HAWAII, EPA Region 9

Approximate Population: 882

Input Area (sq. miles): 3.14

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0
National Pollutant Discharge Elimination System (NPDES)	1

10

EJSCREEN Report (Version 2016)

1 mile Ring Centered at 20.896116,-156.456842, HAWAII, EPA Region 9

Approximate Population: 882

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.37	N/A	9.32	N/A
Ozone (ppb)	N/A	N/A	N/A	51	N/A	47.4	N/A
NATA* Diesel PM (µg/m³)	0.229	0.149	82	0.978	<50th	0.937	<50th
NATA* Cancer Risk (lifetime risk per million)	32	34	50	43	<50th	40	<50th
NATA* Respiratory Hazard Index	1.2	1	72	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	970	990	77	1100	71	590	87
Lead Paint Indicator (% Pre-1960 Housing)	0.48	0.16	89	0.24	76	0.3	74
Superfund Proximity (site count/km distance)	0	0.098	29	0.15	13	0.13	16
RMP Proximity (facility count/km distance)	0.7	0.19	94	0.57	77	0.43	82
Hazardous Waste Proximity* (facility count/km distance)	N/A	0.14	N/A	0.14	N/A	0.11	N/A
Water Discharger Proximity (facility count/km distance)	0.66	0.34	85	0.2	94	0.31	88
Demographic Indicators							
Demographic Index	65%	52%	85	47%	74	36%	84
Minority Population	94%	77%	82	58%	87	37%	92
Low Income Population	35%	26%	72	36%	53	35%	55
Linguistically Isolated Population	23%	6%	94	9%	88	5%	94
Population With Less Than High School Education	34%	9%	98	17%	81	14%	91
Population Under 5 years of age	8%	6%	75	7%	69	6%	72
Population over 64 years of age	26%	15%	90	13%	93	14%	92

[illegible]

For additional information, see: [illegible]

[illegible]

June 29, 2017

3/3

10

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

EPO 17-228

RECEIVED
OCT 03 2017

September 22, 2017

Mr. Jeff Walsh
Maui All Natural Alternative, LLC
5780 Fleet Street, Suite 310
Carlsbad, California 92008
Email: jeff.walsh@anaergia.com

Dear Mr. Walsh:

SUBJECT: Environmental Impact Statement Preparation Notice (EISPN) for Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility, Maui TMK: (2) 3-8-001:188 (por)

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your EISPN to our office via the OEQC link:
http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-09-08-MA-2nd-EISPN-Renewable-Energy-Conversion-and-Sludge-Processing-for-the-Wailuku-Kahului-WWRF.pdf

We understand from the OEQC publication form project summary that *"Maui All Natural Alternative, LLC ("MANA") proposed to install an anaerobic digester and associated appurtenances onsite, which will anaerobically digest energy crops grown on former Hawaiian Commercial & Sugar (HC&S) plantation lands and sourced locally from Central Maui Feedstocks, LLC. The product of the anaerobic digestion process is renewable methane in the form of biogas that is treated on site and used to fuel a combined heat and power (CHP) engine for electrical power generation. Recovery heat from the CHP with additional biogas will provide the heat for the drying of all the municipally generated wastewater biosolids produced on Maui. The Project is not designed to export electrical energy to the grid. The entire facility will be located on the west side of the existing aerobic blower building and well within the confines of the WKWWRF. All energy crops will be grown on existing agricultural land. The Project goals are to provide locally sourced renewable energy to assist the County of Maui in achieving its renewable goals and to provide a long term sustainable solution for biosolids management."*

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments.

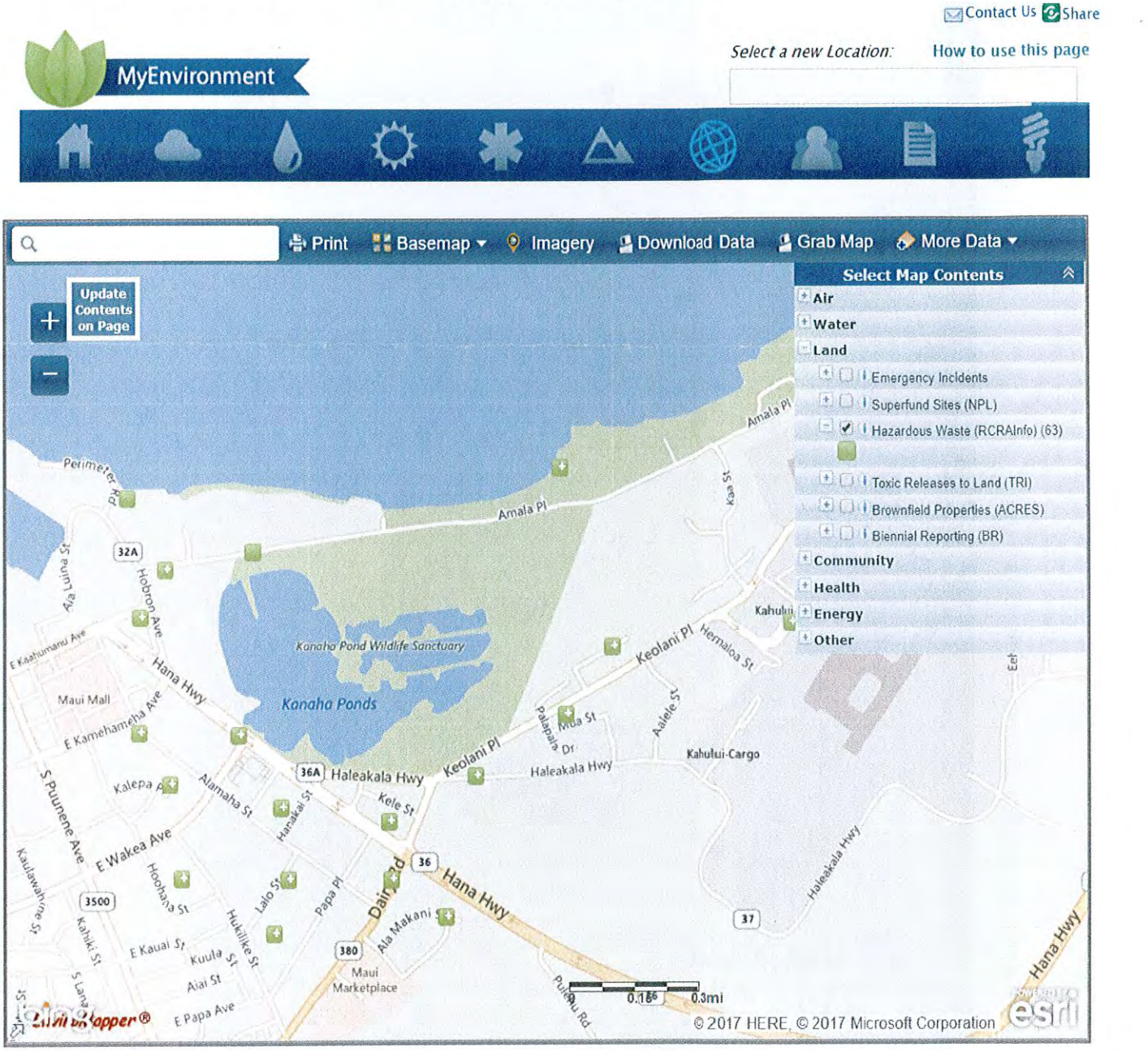
We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

Please note that all wastewater plans must conform to applicable provisions (HAR, Chapter 11-62, "Wastewater Systems"). We reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should

10

Please be advised:
The Environmental Planning Office (EPO), along with the Clean Air, Clean Water, and Wastewater Branches will be moving in December 2017. The new address, for EPO, **as of January 1, 2018**, will be:
Environmental Planning Office, DOH, Hale Ola, 2827 Waimano Home Road #109, Pearl City, Hawaii 96782
Please feel free to come and visit our new offices anytime. Please note that there is a security guard at the bottom of the hill (before entering DOH property). Our office phone numbers, email and website will all remain the same.

Attachment 2: U.S. Environmental Protection Agency (EPA) Cleanup Site viewer



Attachment 4: U.S. EPA EJSCREEN Report for Project Area

EPA United States Environmental Protection Agency

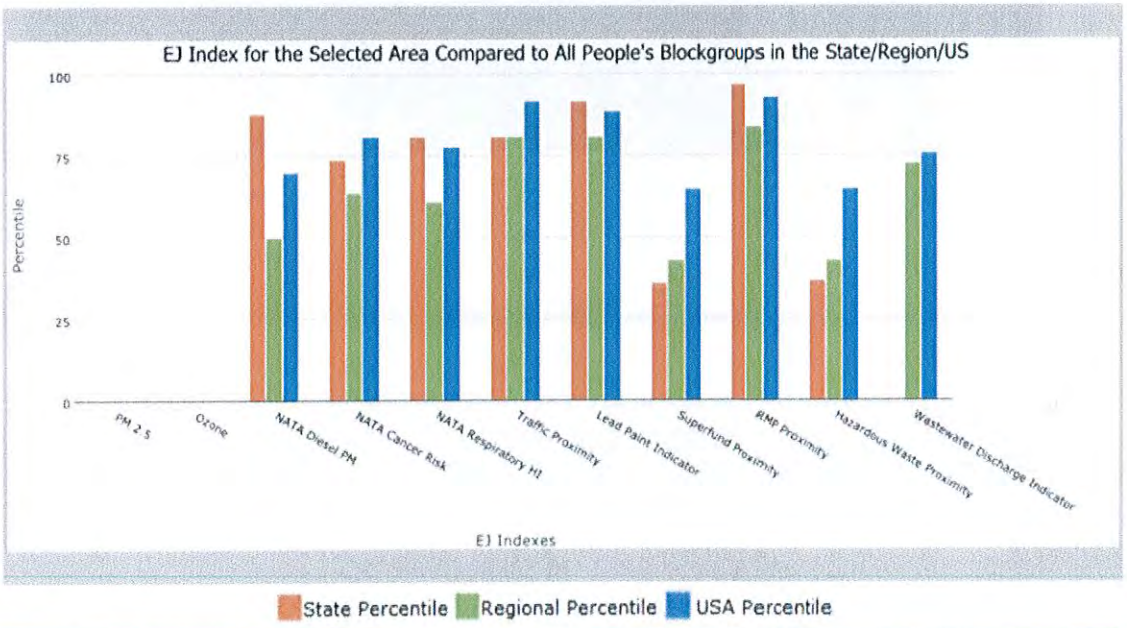
EJSCREEN Report (Version 2017)

1 mile Ring Centered at 20.895548,-156.460101, HAWAII, EPA Region 9

Approximate Population: 1,827

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	88	50	70
EJ Index for NATA* Air Toxics Cancer Risk	74	64	81
EJ Index for NATA* Respiratory Hazard Index	81	61	78
EJ Index for Traffic Proximity and Volume	81	81	92
EJ Index for Lead Paint Indicator	92	81	89
EJ Index for Superfund Proximity	36	43	65
EJ Index for RMP Proximity	97	84	93
EJ Index for Hazardous Waste Proximity	37	43	65
EJ Index for Wastewater Discharge Indicator	N/A	73	76



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

September 21, 20 1/3

EPA United States Environmental Protection Agency

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 20.895548,-156.460101, HAWAII, EPA Region 9

Approximate Population: 1,827

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.9	N/A	9.14	N/A
Ozone (ppb)	N/A	N/A	N/A	41.8	N/A	38.4	N/A
NATA* Diesel PM (µg/m³)	0.229	0.149	82	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	32	34	50	43	<50th	40	<50th
NATA* Respiratory Hazard Index	1.2	1	72	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	920	1000	76	1100	70	590	86
Lead Paint Indicator (% Pre-1960 Housing)	0.37	0.16	83	0.24	69	0.29	67
Superfund Proximity (site count/km distance)	0.006	0.1	19	0.15	5	0.13	1
RMP Proximity (facility count/km distance)	1.6	0.39	96	0.98	82	0.73	87
Hazardous Waste Proximity (facility count/km distance)	0.0062	0.1	23	0.12	2	0.093	2
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	0.04	N/A	13	59	30	40
Demographic Indicators							
Demographic Index	67%	51%	89	47%	77	36%	86
Minority Population	94%	77%	82	59%	88	38%	93
Low Income Population	39%	26%	82	36%	59	34%	62
Linguistically Isolated Population	12%	6%	85	9%	72	5%	87
Population With Less Than High School Education	24%	9%	94	17%	71	13%	83
Population Under 5 years of age	9%	6%	78	7%	74	6%	77
Population over 64 years of age	25%	16%	88	13%	91	14%	91

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Dr. Virginia Pressler, Director
State of Hawaii
Department of Health
P.O. Box 3379
Honolulu, HI 96801-3378

SUBJECT: July 24 and September 22, 2017 Comment Letters Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project Reference Numbers: EPO 17-150 and 17-228

Dear Dr. Pressler:

Thank you also for providing your July 24, and September 22, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. The proposed project will comply with the requirements of HAR Chapter 11-200 related to addressing project impacts and public health. The Draft EIS prepared for the project contains proposed mitigation measures to address direct, indirect, and cumulative impacts.

2. In preparing the Draft EIS, MANA utilized the Federal and State environmental health land use guidance that was provided, including GIS maps and the environmental health portal.

3. MANA has reviewed the resources with respect to the requirements of the Clean Water, Wastewater, and Solid and Hazardous Waste Branches and incorporated applicable standards in the Draft EIS. Fugitive dust and noise concerns are also addressed in the Draft EIS.

4. Regarding Environmental Justice, there are no housing units located in the vicinity of the project. As such, no minority or low-income populations are abnormally adversely affected by the proposed project.

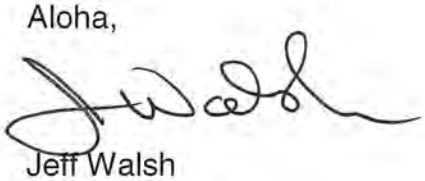
5. The effects of climate change, including sea level rise and coastal impacts, are discussed in the Draft EIS. MANA has reviewed the references provided with respect to climate change.

6. MANA is committed to developing a project that is sustainable, innovative, inspirational, transparent, and healthy in design.

MANA
MAUI ALL NATURAL ALTERNATIVE

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,



Jeff Walsh

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

LORRIN W. PANG, M.D., M.P.H.
DISTRICT HEALTH OFFICER

RECEIVED
2017 MAR 24 AM 10:16
COUNTY OF MAUI
DEPT. OF ENVIRONMENTAL MGMT

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, HAWAII 96793-3378

March 22, 2017

Mr. Jeff Walsh
Project Business Development Manager, MANA LLC
c/o Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

Dear Mr. Walsh:

Subject: Early Consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility
Energy Independence Project
281 Amala Place, Kahului, Hawaii
TMK: (2) 3-8-001:188 (por.)

Thank you for the opportunity to review this project. We have no comments to offer.

It is strongly recommended that the Standard Comments found at the Department's website: http://health.hawaii.gov/epo/home/landuse-planning-review-program/ be reviewed and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please contact me at 808 984-8230 or email me at patricia.kitkowski@doh.hawaii.gov.

Sincerely,

Patti Kitkowski

Patti Kitkowski
District Environmental Health Program Chief

c EPO

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Patti Kitkowski, District Environmental Health Program Chief
Department of Health, Maui District Health Office
54 High Street
Wailuku, HI 96793-3378

SUBJECT: March 22, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Ms. Kitkowski:

Thank you also for providing your March 22, 2017 comments for the proposed project. In response to your comment, MANA has reviewed the standard comments on the Department of Health website provided and has incorporated applicable measures in the Draft EIS.

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

MANA LLC Proposed Energy &
Class A Sludge Facility.ltr

March 14, 2017

Mr. Jeff Walsh
Project Business Development Manager
Maui All Natural Alternative LCC
c/o County of Maui
Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793
Email: jeff.walsh@anaergia.com

Dear Mr. Walsh:

Subject: Early Consultation Request
Proposed Maui All Natural Alternative LCC (MANA)
Energy Independence/Beneficial Sludge Class A Soil Amendment Facility
At County of Maui, Wailuku-Kahului WWRF (WTW No. 314)
281 Amala Place, Kahului, Maui, Hawaii
TMK (2) 3-8-001: 188 (por.)

The Department of Health (DOH), Wastewater Branch acknowledges the receipt of your early consultation request letter dated February 28, 2017, for the proposed subject project. We have reviewed the information provided in your letter and have the following comments.

The proposed beneficial sludge Class A soil amendment production facility shall comply with the regulatory requirements of 40 CFR § 503 and Hawaii Administrative Rules (HAR), Chapter 11-62, entitled Wastewater Systems. Accordingly, the operation of the proposed sludge Class A soil amendment production facility is required to be regulated under an individual wastewater system permit issued by the DOH in accordance with HAR, Section 11-62-41(a)(1)(A). In addition, HAR, Section 11-62-08(b) specifies that no person shall construct, modify the construction of, of modify the use of a wastewater system without the approval of the Director of Health.

In closing, all wastewater and sewage sludge plans must conform to applicable provisions of the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems," and Title 40 Code of Federal Regulations, Part 503.

Should you have any questions, please contact Mr. Mark Tomomitsu of my staff at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

MST:sp

30

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
WASTEWATER BRANCH
919 ALA MOANA BLVD., ROOM 309
HONOLULU, HI 96814-4920

In reply, please refer to:
File:

LUD – 2 3 8 001 188 EISPN
Wailuku-Kahului WWRF-ID3464

July 3, 2017

Mr. Stewart Stant
Director of Environmental Management
County of Maui
2050 Main Street Suite 2B
Wailuku, Maui, Hawaii 96793

Dear Mr. Stant:

Subject: Environmental Impact Statement Preparation Notice for Maui All Natural Alternative, LLC's "Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WRF)" Project 281 Amala Place, Kahului, Maui 96752 TMK (2) 3-8-001: 188

Thank you for allowing us the opportunity to provide comments on the above subject project in which we have the following comments to offer.

The subject project is located in the critical wastewater disposal area as determined by the Maui County Wastewater Advisory Committee. We presently have no objections to the proposed renewable energy conversion and sludge processing facility at the Wailuku-Kahului WWRF. We are always satisfied to see improvements being made to our existing wastewater systems. The proposed facility for the conversion of wastewater biosolids into Class A fertilizer is subject to be permitted under the individual wastewater sludge use permit program in accordance with Hawaii Administrative Rules (HAR), Chapter 11-62, Subchapter 4, "Wastewater Sludge Use and Disposal." The supernatant from the proposed processing facility will be required to be treated at and disposed of at the Wailuku-Kahului WRF.

Please be informed that the proposed wastewater systems for the project may have to include design considerations to address any effects associated with the construction of and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources or the exercise of traditional cultural practices. In addition, all wastewater plans must conform to applicable provisions of the HAR, Chapter 11-62, "Wastewater Systems."

Should you have any questions please contact Mr. Mark Tomomitsu of our office at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM/MST:lmj

c: Ms. Laura McIntyre, DOH-EPO, EPO17-150, via email
Mr. Roland Tejano, DOH-WWB's Maui Staff, via email
Mr. Jeff Wash, Maui All Natural Alternative, LLC, via email: jeff.walsh@anaergia.com

39

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
WASTEWATER BRANCH
919 ALA MOANA BLVD. ROOM 309
HONOLULU, HI 96814-4920

In reply, please refer to:
File:

LUD – 2 3 8 001 188 MANA Prop
Renewable Energy Conversion -ID3645

September 24, 2017

Mr. Jeff Walsh, Project Business Development Manager
Maui All Natural Alternative, LLC (MANA)
5780 Fleet Street, Suite 310
Carlsbad, CA 92008
Email: jeff.walsh@anaergia.com

Dear Mr. Walsh:

Subject: Environmental Impact Statement Preparation Notice(EISPN) for
Maui All Natural Alternative (MANA), LLC's
Proposed Renewable Energy Conversion and Sludge Processing for the
Wailuku-Kahului Wastewater Reclamation Facility (WRF) Project
281 Amala Place, Kahului, Maui 96752 TMK (2) 3-8-001: 188

Thank you for allowing us the opportunity to provide comments on the subject project's EISPN. The proposed facility for the conversion of wastewater biosolids into Class A fertilizer is required to be permitted under the individual wastewater sludge use permit program in accordance with Hawaii Administrative Rules (HAR), Chapter 11-62, Subchapter 4, "Wastewater Sludge Use and Disposal."

In addition, the Department of Health, Wastewater Branch will not allow the untreated liquid digestate removed from the anaerobic digester by Central Maui Feedstocks LLC to be land applied. In accordance with Hawaii Administrative Rules (HAR), Chapter 11-62, Wastewater Systems, the digestate will need to be dewatered at the Kahului Reclamation Facility, similar to the processing of wastewater sludge. Additionally, the subnatant from the dewatering process will need to be piped to the plant headworks. The properly dewatered digestate would then fall under the regulatory jurisdiction of the Solid Hazardous Waste Branch as a solid waste material and the applicable requirements thereunder.

Please be informed that the proposed wastewater systems for the project may have to include design considerations to address any effects associated with the construction of

and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources or the exercise of traditional cultural practices. In addition, all wastewater plans must conform to applicable provisions of the HAR, Chapter 11-62, "Wastewater Systems."

Should you have any questions please contact Mr. Mark Tomomitsu of our office at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM/MST/SP

c: Ms. Laura McIntyre, DOH-EPO, EPO17-150, via email
Mr. Roland Tejano, DOH-WWB's Maui Staff, via email

MANA
Maui All Natural Alternative

December 16, 2017

Sina Pruder, P.E., Wastewater Branch Chief
Department of Health
54 High Street
Wailuku, HI 96793-3378

SUBJECT: March 14, July 3, and September 24, 2017 Comment Letters Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Ms. Pruder:

Thank you also for providing your March 14, July 3, and September 24, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. The proposed Class A dried sludge soil amendment will comply with the regulatory requirements of 40 CRF Part 503 and HAR Chapter 11-62. Moreover, MANA will continue dialogue with the State DOH regarding permitting the sludge drying facility and the disposition of digester supernatant in accordance with HAR Chapter 11-62.

2. MANA will coordinate with the State DOH regarding design considerations to address any effects associated with the construction of and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources, or the exercise of traditional cultural practices.

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS
2017 MAR -8 A 11:34

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII
2017 MAR -9 AM 10:48
RECEIVED
LAND DIVISION

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 8, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project
LOCATION: Kahului, Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **April 3, 2017**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
( ) Comments are attached.

Signed:

Print Name:
Date: 3.8.17

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 8, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project
LOCATION: Kahului, Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **April 3, 2017**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: Edward R. Underwood

Print Name: Edward R. Underwood
Date: 3/10/17

cc: · Central Files

12

57288

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 8, 2017

RECEIVED
LAND DIVISION
2017 MAR 13 AM 11:14
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project
LOCATION: Kahului, Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **April 3, 2017**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

(X) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: [signature]

Print Name: CURT COTTRELL
Date: 3.10.17

cc: Central Files

12

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
2017 APR -6 PM 12: 48
COUNTY OF MAUI
DEPT OF ENVIRONMENTAL MGMT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

April 4, 2017

Mr. Jeff Walsh, Project Business Development Manager
MANA LLC
c/o County of Maui
Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

Dear Mr. Walsh:

SUBJECT: Early Consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project

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

At this time, enclosed are comments from the (a) Office of Conservations & Coastal lands, (b) Division of State Parks, (c) Division of Boating & Ocean Recreation, (d) Engineering Division and (e) Division of Aquatic Resources on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

12.

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
'17 MAR 16 AM 10:43
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

'17 MAR 14 P1:17 ENGINEERING

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 8, 2017

MEMORANDUM

TO:

DLNR Agencies:
X Div. of Aquatic Resources
X Div. of Boating & Ocean Recreation
FROM: X Engineering Division
__ Div. of Forestry & Wildlife
X Div. of State Parks
X Commission on Water Resource Management
X Office of Conservation & Coastal Lands
X Land Division – Maui District
X Historic Preservation

FROM: TO:
Russell Y. Tsuji, Land Administrator

SUBJECT: Early Consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project

LOCATION: Kahului, Island of Maui; TMK: (2) 3-8-001:188 (por.)

APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **April 3, 2017**.

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:

Print Name: Carty S. Chang, Chief Engineer

Date: 3/14/17

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Early Consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a designated Flood Hazard.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

The applicant should include water demands and infrastructure required to meet project needs. Please note that the projects within State lands requiring water service from their local Department/Board of Water Supply system will be required to pay a resource development charge, in addition to Water Facilities Charges for transmission and daily storage.

The applicant is required to provide water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update projections.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 3/14/17

12

RECEIVED
MAR - 9 2017
Division of Aquatic Resources

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAR #5491

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

RECEIVED
LAND DIVISION
2017 MAR 16 AM 10:51
DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

March 8, 2017

MEMORANDUM

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

JK

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Early Consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project
LOCATION: Kahului, Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **April 3, 2017.**

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: Bruce S. Anderson

Print Name: Bruce S. Anderson, Ph.D., DAR Administrator
Date: 3/14/17

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. PEARSON
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: 3/13/2017
DAR # 5491

MEMORANDUM

TO: Bruce S. Anderson, DAR Administrator

DATE: 3/13/2017

FROM: Russell Sparks

SUBJECT: Early consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project

Comment	Date Request	Receipt	Referral	Due Date
	3/8/2017	3/9/2017	3/10/2017	4/3/2017

Requested by: Russell Y. Tsuji, Land Division, DLNR

Summary of Proposed Project

Title: Early consultation Request for the Wailuku-Kahului Wastewater Reclamation Facility Energy Independence Project

Project by: County of Maui, Department of Environmental Management

Location: Kahului, Maui, TMK (2)3-8-001:188

Brief Description: A contractor with the County of Maui is looking into developing an on-site anaerobic digester to allow for digestion of renewable energy crops along with bio-solids from the wastewater treatment plant in order to generate renewable natural gas for power generation.

Comments: We have no comments at this time, but remain interested in further reviewing the draft EA or EIS when those documents are ready for agency review.

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plans, DAR requests the opportunity to review and comment on those changes.

13

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 21, 2017

County of Maui
Department of Environmental Management
Attention: Mr. Stewart Stant, Director
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

via email: stewart.stant@co.maui.hi.us

Dear Mr. Stant:

SUBJECT: Renewable Energy Conversion and Sludge Processing for the Wailuku – Kahului Wastewater Reclamation Facility - EISPN

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

At this time, enclosed are comments from the (a) Division of Boating & Ocean Recreation, (b) Division of State Parks, (c) Engineering Division and (d) Division of Aquatic Resources on the subject matter. Should you have any questions, please feel free to call Lydia Morikawa at 587-0410. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure(s)
cc: Central Files

13

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 28, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Renewable Energy Conversion and Sludge Processing for the Wailuku – Kahului Wastewater Reclamation Facility - EISPN
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **July 20 2017.**

The EISPN can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: Edward R. Underwood

Print Name: Edward R. Underwood
Date: 6/30/17

cc: Central Files

JUN29'17PM 2:22DOR AGR

13

57379

DAVID Y. IGE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2017 JUL -5 AM 11:

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
STATE PARKS DIV
'17 JUN 30 A11:52

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 28, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Renewable Energy Conversion and Sludge Processing for the Wailuku – Kahului Wastewater Reclamation Facility - EISPN
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **July 20 2017.**

The EISPN can be found on-line at: http://health.hawaii.gov/oegc/ (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed:
Print Name: Curt Cottrell
Date: 7.3.17

cc: Central Files

13.

RECEIVED
JUN 28 2017
Division of Aquatic Resources
DAR 4548

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 28, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Renewable Energy Conversion and Sludge Processing for the Wailuku - Kahului Wastewater Reclamation Facility - EISPN
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **July 20 2017.**

The EISPN can be found on-line at: http://health.hawaii.gov/oegc (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: Bruce S. Anderson

Print Name: Bruce S. Anderson, Phd DAR Administrator
Date: 7/6/17

cc: Central Files

13

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. [illegible]
CHAIRPERSON
[illegible]

KEKOA KALUHIWA
FIRST DEPUTY

JEFFREY T. P. [illegible]
DEPUTY DIRECTOR - WATER

[illegible]

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: 7/17/2017
DAR # 5568

MEMORANDUM

TO: Bruce S. Anderson, PhD
DAR Administrator

FROM: Russell Sparks, Aquatic Biologist

SUBJECT: EISPN For Renewable Energy Conversion and Sludge Processing Plant -Kahului

Request Submitted by: Russell Y. Tsuji, DLNR Land Administrator

Location of Project: Kahului, Maui (2)3-8-001-188

Brief Description of Project:
This is an updated public notice for the planned EIS regarding the proposed Maui All Natural Alternative renewable energy conversion and sludge processing project for the Wailuku-Kahului Wastewater Reclamation Facility in Kahului Maui. Plans call for a contractor to the county of Maui, to develop an on-site anaerobic digester to allow for the digestion of renewable energy crops along with bio-solids from the wastewater treatment plant to generate renewable natural gas for power generation.

Comments:
☒ No Comments ☒ Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: Bruce S. Anderson Date: 7/18/17
Bruce S. Anderson, PhD
DAR Administrator

13

DAR # 5568

Comments

We have no comments at this time, but remain interested in reviewing the Draft EIS when it is completed and ready for agency review.

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plans, DAR requests the opportunity to review and comment on those changes.

13.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 25, 2017

Mana LLC
Attention: Mr. Jeff Walsh
Project Business Development Manager
c/o Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

via email: jeff.walsh@anaergia.com

Dear Mr. Walsh:

SUBJECT: Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility – EISPN – located in Wailuku, Island of Maui; TMK: (2) 3-8-001:por. 188

Thank you for the opportunity to review and comment on the subject matter. In addition to the comments previously sent you on July 21, 2017, enclosed are comments from the Division of Forestry & Wildlife on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosure
cc: Central Files
County of Maui (w/copy)
Department of Environmental Management
Attention: Mr. Stewart Stant, Director (via email: stewart.stant@co.maui.hi.us)

13

DAVID Y. IGE
GOVERNOR OF HAWAII

'17 JUN 29 AM10:44 ENGINEERING

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

June 28, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Renewable Energy Conversion and Sludge Processing for the Wailuku – Kahului Wastewater Reclamation Facility - EISPN
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: County of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced project. We would appreciate your comments on this project. Please submit any comments by **July 20 2017.**

The EISPN can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed: _____
Print Name: Carty S. Chang, Chief Engineer
Date: 7/5/17

cc: Central Files

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji
Ref: Renewable Energy Conversion and Sludge Processing for the Wailuku - Kahului Wastewater Reclamation Facility - EISPN

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within an area of special Flood Hazard.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai: County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4896.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: 7/5/17

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE
1151 PUNCHBOWL STREET, ROOM 325
HONOLULU, HAWAII 96813

August 1, 2017

TO: Russell Y. Tsuji
Land Administrator

ATTN: Lydia Morikawa

FROM: James Cogswell
Wildlife Program Manager

SUBJECT: Division of Forestry and Wildlife Comments on Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility-EISPN

The Department of Forestry and Wildlife has received your inquiry regarding the Environmental Impact Statement Preparation Notice for the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility, located at TMK (2) 3-8-001:188. The proposed actions includes installing an anaerobic digester and associated appurtenances onsite.

Waterbirds
State and Federally listed waterbirds such as the Hawaiian duck (*Anas wyvilliana*), Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), and Hawaiian goose, or Nēnē (*Branta sandvicensis*) are likely to occur in the vicinity of the proposed project site due to the proximity of the Kanaha Ponds Wildlife Sanctuary. To minimize the potential for take, surveys for waterbirds by a qualified biologist are recommended before any land clearing or excavation activities occur, and should be repeated if these activities are delayed more than three days. If a nest is discovered at any point, please contact DOFAW staff. If a bird is present during ongoing activities, then all activities within 100 feet (30 m) of the bird should cease, and the bird should also not be approached. Work may continue after the bird leaves the area of its own accord.

Hawaiian hoary bat
The State and Federally listed Hawaiian hoary bat or ʻŌpeʻapeʻa (*Lasiurus cinereus semotus*) has the potential to occur in the vicinity of the proposed project. Hawaiian hoary bats roost in both exotic and native trees. If any trees are planned for removal during the bat breeding season there is a risk of injury or mortality to juvenile bats. To minimize the potential for impacts to this species, site clearing should be timed to avoid disturbance to breeding Hawaiian hoary bats; woody plants greater than 15 feet (4.6 meters) tall should not be disturbed, removed, or trimmed during the bat birthing and pup rearing season (June 1 through September 15).

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

October 11, 2017

Mana LLC
Attention: Mr. Jeff Walsh
Project Business Development Manager
c/o Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

via email: jeff.walsh@anaergia.com

Dear Mr. Walsh:

SUBJECT: *Revised EISPN* for the Proposed Renewable Energy Conversion and Sludge Processing Project for the **Wailuku – Kahului Wastewater Reclamation Facility** located at Wailuku, Island of Maui; TMK: (2) 3-8-001: Portion of 188

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

At this time, enclosed are comments from the (a) Division of Aquatic Resources, (b) Division of Boating & Ocean Recreation, (c) Engineering Division, (d) Division of State Parks, and (e) Office of Conservation & Coastal Lands, on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at (808) 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files

DAR

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
SEP 23 2017
Division of Aquatic Resources
DAR 5615

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 22, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: ***Revised EISPN*** for the Proposed Renewable Energy Conversion and Sludge Processing Project for the **Wailuku – Kahului Wastewater Reclamation Facility**
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001: Portion of 188
APPLICANT: County Of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **October 10, 2017.**

The DEA can be found on-line at: http://health.hawaii.gov/oegc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
( ) Comments are attached.

Signed: Bruce K Anderson

Print Name: Bruce S. Anderson, Ph.D., DAR Administrator

Date: _____

cc: Central Files

13

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LD/Russell Y. Tsuji

Ref: Revised EISPN for the Proposed Renewable Energy Conversion and Sludge Processing Project for the Wailuku-Kahului Wastewater Reclamation Facility, Wailuku, Island of Maui; TMK; (2) 3-8-001: Portion of 188

COMMENTS

The rules and regulations of the National Flood Insurance Program (NFIP), Title 44 of the Code of Federal Regulations (44CFR), are in effect when development falls within a designated Flood Hazard.

The owner of the project property and/or their representative is responsible to research the Flood Hazard Zone designation for the project. Flood Hazard Zone designations can be found using the Flood Insurance Rate Map (FIRM), which can be accessed through the Flood Hazard Assessment Tool (FHAT) (http://gis.hawaiinfip.org/FHAT).

Be advised that 44CFR reflects the minimum standards as set forth by the NFIP. Local community flood ordinances may take precedence over the NFIP standards as local designations prove to be more restrictive. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

- Oahu: City and County of Honolulu, Department of Planning and Permitting (808) 768-8098.
- Hawaii Island: County of Hawaii, Department of Public Works (808) 961-8327.
- Maui/Molokai/Lanai County of Maui, Department of Planning (808) 270-7253.
- Kauai: County of Kauai, Department of Public Works (808) 241-4846.

Signed: _____
CARTY S. CHANG, CHIEF ENGINEER

Date: _____

13

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 330
HONOLULU, HAWAII 96813

Date: 9/25/2017
DAR #5615

MEMORANDUM

TO: Bruce S. Anderson, PhD
DAR Administrator

FROM: Russell Sparks, Aquatic Biologist

SUBJECT: Revised EISPN for the Proposed Renewable Energy Conversion and Sludge Processing Project for the Wailuku-Kahului Wastewater Reclamation Facility

Request Submitted by: _____

Location of Project: Wailuku, Maui, TMK: (2)3-8-001:Portion 188

Brief Description of Project:

Maui All Natural Alternative (MANA) is preparing to complete an EIS for the development of anon-site anaerobic digester to allow for digestion of renewable energy crops along with bio-solids from the wastewater treatment plant in order to generate renewable natural gas for power generation.

Comments:
☐ No Comments ☒ Comments Attached

Thank you for providing DAR the opportunity to review and comment on the proposed project. Should there be any changes to the project plan, DAR requests the opportunity to review and comment on those changes.

Comments Approved: _____ Date: 10/2/17
Bruce S. Anderson, PhD
DAR Administrator

13

DAR

DAR# 5615

Comments

We have no specific comments at this point, but have concerns about potential impacts to the coastal ecosystem in Kahului and with any potential pollution impacts to the nearshore waters offshore of the Kahului Wastewater Treatment Plant. We therefore, remain interested in further reviewing the draft EA of EIS when ready for agency review.

OCCL 13

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2017 SEP 22 A 11:53

September 22, 2017

MEMORANDUM

FROM:
TO:

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

TO:
FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: ***Revised EISPN*** for the Proposed Renewable Energy Conversion and Sludge Processing Project for the **Wailuku – Kahului Wastewater Reclamation Facility**
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001: Portion of 188
APPLICANT: County Of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **October 10, 2017.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

COMMENTS ATTACHED
COR: MA-19-43

( ) We have no objections.
( ) We have no comments.
(X) Comments are attached.

Signed:

Print Name: ALEX J. ROY

Date: 10 - 6 - 2017

cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 22, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: *Revised EISPN* for the Proposed Renewable Energy Conversion and Sludge Processing Project for the **Wailuku – Kahului Wastewater Reclamation Facility**
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001: Portion of 188
APPLICANT: County Of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **October 10, 2017.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
( ) We have no comments.
(✓) Comments are attached.

Signed: _____

Print Name: ~~Carty S. Chang, Chief Engineer~~

Date: _____

cc: Central Files

13

57435

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RECEIVED
STATE PARKS

'17 SEP 25

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 22, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: *Revised EISPN* for the Proposed Renewable Energy Conversion and Sludge Processing Project for the **Wailuku – Kahului Wastewater Reclamation Facility**
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001: Portion of 188
APPLICANT: County Of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **October 10, 2017.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

(✓) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: [signature]

Print Name: CURT COTTRELL

Date: 9.27.17

cc: Central Files

13

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 22, 2017

MEMORANDUM

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

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: ***Revised EISPN*** for the Proposed Renewable Energy Conversion and Sludge Processing Project for the **Wailuku – Kahului Wastewater Reclamation Facility**
LOCATION: Wailuku, Island of Maui; TMK: (2) 3-8-001: Portion of 188
APPLICANT: County Of Maui, Department of Environmental Management

Transmitted for your review and comment is information on the above-referenced subject matter. We would appreciate your comments by **October 10, 2017.**

The DEA can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on The Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Darlene Nakamura at 587-0417. Thank you.

Attachments

( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: _____

Print Name: _____

Date: _____

cc: Central Files

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Ms. Suzanne Case, Chairperson
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

SUBJECT: April 4, July 21, August 25, and October 11, 2017 Comment Letters Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Ms. Case:

Thank you also for providing your April 4, July 21, August 25, and October 11, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. The proposed project will comply with the rules and regulations of the National Flood Insurance Program, Title 44 of the Code of Federal Regulations (44 CFR). The proposed project, which is situated within the WKWWRF, is situated in Flood Zone VE, with base flood elevations of 15 to 20 feet above mean sea level, as designated by the Flood Insurance Rate Map prepared by the Federal Emergency Management Agency. The proposed project will also comply with the County of Maui Planning Department's local community flood ordinance.

2. During the permitting stage of the project, MANA will consult with the County of Maui Department of Water Supply and DLNR Engineering Division with its water demands and calculations. MANA will pay applicable water charges related to the proposed project.

3. A Biological Survey and Assessment was prepared for this project by a qualified local wildlife biologist and is included in the Draft EIS. The mitigation measures noted for waterbirds and the Hawaiian hoary bat are included in the Draft EIS and will be implemented during construction.

4. Potential impacts to the coastal ecosystem in Kahului, potential pollution impacts to the nearshore waters offshore, and applicable mitigation measures are discussed in the Draft EIS.

MANA
MAUI ALL NATURAL ALTERNATIVE

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

OCCL 13

DAVID Y. IGE
GOVERNOR OF
HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF: OCCL: AJR

COR: MA-18-43

SEP 14 2017

Stewart Stant, Director
County of Maui
Department of Environmental Management
2050 Main Street, Ste. 2B
Wailuku, HI 96793

SUBJECT: PROPOSED RENEWABLE ELECTRICAL ENERGY FOR THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY
Wailuku District, Island of Maui
TMK: (2) 3-8-001:188

Dear Mr. Stant,

The Office of Conservation and Coastal Lands (OCCL) is in receipt of your letter requesting concurrence with designation of the County of Maui as the Accepting Authority for an Environmental Impact Statement (EIS) being prepared for the subject project. For referenee, the project area (i.e., project pareel) is located entirely within the State Land Use (SLU) Conservation District, *Limited* Subzone.

According to the information provided, the County of Maui is proposing to install an anaerobic digester and associated appurtenances on-site, which will "digest" energy crops grown nearby to produce a renewable natural bio-gas. The bio-gas will be refined on site and used to fuel a combined heat and power engine to generate sufficient energy to power the *Wailuku-Kahalui Wastewater Recelamation Facility.* It was stated that the project is not designed to export electrical energy to the Maui electrical grid, all power generated will be used on site.

- The construction of a renewable bio-gas facility for power generation is considered an identified land use pursuant to Hawaii Administrative Rules (HAR) §13-5-22, P-12 POWER GENERATION FROM RENEWABLE RESOURCES (D-1) *Hydroelectric, wind generation, ocean thermal energy conversion, wave, solar, geothermal, biomass, and other renewable power generation facilities from natural resources; includes generation, conversion, and transmission facilities and access roads. Renewable energy projects shall minimize impacts to natural, cultural, and recreational resources, and shall be expedited in the application review and decision-making process. A management plan approved simultaneously with the permit, is also required.* In order to apply for this use, the applicant

will be required to submit to this office a completed Conservation District Use Application (CDUA) and all associated documents for review and processing. Please be informed that the final decision to approve or deny this application rests with the Board of Land and Natural Resources;

- The applicant will be required to submit a Management Plan, pursuant to ***HAR §13-5, Exhibit 3*** as part of the CDUA;
- In conformance with §343, Hawaii Revised Statutes (HRS), as amended, and HAR, §11-200-8, this proposed project will require the filing of an environmental document;
- The OCCL concurs that the *County of Maui* will be the accepting authority for the proposed environmental document;
- Pursuant to HAR §13-5-40 *Hearings*, a public hearing will not be required; and
- Please be informed that, the applicant's responsibility includes complying with the provisions of Hawaii's Coastal Zone Management law (Chapter 205A, Hawaii Revised Statures) that pertain to the Special Management Area (SMA) requirements administered by the various counties. Negative action by the Chair of the BLNR on this application can be expected should you fail to obtain and provide us, at least thirty (30) days prior to Chairpersons action, one of the following from the appropriate county:

    1. An official determination that the proposal is exempt from the provisions of the county rules relating to the SMA;
    2. An official determination that the proposed development is outside the SMA; or
    3. An SMA Use Permit for the proposed development.

If you have any questions regarding this letter, please contact Alex J. Roy, M.Sc. of our Conservation and Coastal Lands staff at 808-587-0316 ~~or via email~~ at alex.j.roy@hawaii.gov

Sincerely,

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

CC: Chairperson
MDLO

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Mr. Samuel Lemmo, Administrator
Office of Conservation and Coastal Lands
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

SUBJECT: September 14, 2017 Comment Letters Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Mr. Lemmo:

Thank you also for providing your September 14, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. MANA will submit a Conservation District Use Application (CDUA) and all associated documents for review and approval by the Board of Land and Natural Resources at the appropriate time.

2. As part of the CDUA, MANA will submit a Management Plan, pursuant to HAR Chapter 13-5, Exhibit 3.

3. In conformance with HRS Chapter 343 and HAR 11-200, a Draft EIS will be filed.

4. MANA recognizes that OCCL concurs that the County of Maui will be the accepting Authority for the EIS.

5. MANA recognizes that, pursuant to HAR Chapter 13-5-40, Hearings, a public hearing will not be required.

6. MANA affirms that HRS Chapter 205A, Hawaii's Coastal Zone Management law applies and will be addressed in the Draft EIS. In addition, a Special Management Area Use Permit will be obtained.

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

October 31, 2017

IN REPLY REFER TO:
Log No. 2017.01961
Doc No. 1710MBF15
Archaeology

Michael Miyamoto, Deputy Director
Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B,
Wailuku, HI 96793
Email: Michael.Miyamoto@co.maui.hi.us

Dear Mr. Miyamoto,

SUBJECT: **Chapter 6E-8 Historic Preservation Review –**
Environmental Impact Statement Preparation Notice for Renewable Energy Conversion and Sludge Processing for the Wailuku – Kahului Wastewater Reclamation Facility (WKWWRF)
Wailuku District, Maui
TMK: (2) unknown

Thank you for consulting with the State Historic Preservation Division (SHPD) regarding the subject notification for preparation of the EIS (Notice). The SHPD received the Notice from the County of Maui, Department of Environmental Management (Agency), on September 5, 2017.

The County of Maui (County), Department of Environmental Management expressed a specific need to incorporate a "Renewable Energy and Sludge Processing Facility for the Wailuku Kahului Wastewater Reclamation Facility (WKWWRF)." Its goals are to have a sustainable supply of firm renewable electrical energy to power the operations of the WKWWRF and further to provide drying services for all the municipally generated wastewater sludge on Maui. The County published a request for proposal (RFP) in early 2016 to permit, design, build, own, operate and maintain a renewable energy and dryer project through a power purchase agreement and sludge drying service contract Maui All Natural Alternative, LLC (MANA) submitted a proposal using locally-grown energy crops to produce renewable biogas for both energy production and biosolids drying. The County selected MANA to provide the services of the RFP and has entered a 20-year service contract for the Project. The Project is consistent with the County's and State's goals of energy security and renewability.

No TMK is provided in the Notice, but the County correspondence reports the entire facility with all associated equipment will be located on the west side of the existing aerobic blower building and well within the confines of the WKWWRF. The project has been sited on the WKWWRF in coordination with County Staff to not interfere with the daily operations of the wastewater treatment operations. The Project is consistent with the existing industrial and commercial uses in the general vicinity and zoning. The Draft Environmental Impact Statement (DEIS) will contain a detailed description of the existing land use designations and current uses of the subject property. The property owner and other attributes of the property will be identified in the DEIS. The DEIS will also contain a detailed project description, including technical data and diagrams, as well as the economics, phasing, and timing of the proposed action. Site plans and renderings will be provided to describe the final appearance of the project.

As indicated on page 10 of the Notice, approvals needed for this project include: "an application for an Archeological Inventory Study and approval of the study and findings." The SHPD has insufficient information to

determine potential impacts the proposed project may have on historic properties. Pursuant to HAR §13-275, the **SHPD requests that an archaeological inventory survey (AIS)** meeting the requirements of HAR §13-276 be conducted and an AIS report submitted to the SHPD for review and acceptance **prior to initiation of project related work**.

The AIS shall be conducted by a qualified archaeologist to adequately identify and document any archaeological historic properties that may be present, to assess their significance, to determine the potential impacts of this project on any identified archaeological historic properties, and to identify and ensure appropriate mitigation is implemented, if needed. The SHPD requests that the Agency consult with our office regarding an appropriate testing strategy prior to initiation of the AIS.

Furthermore, per the appropriate procedural steps for consultation with the SHPD, please do not submit a Draft EIS with the requested materials for historic preservation review embedded therein. The AIS report must be submitted under separate cover and accompanied by the appropriate filing fees.

The SHPD looks forward to consultation regarding the appropriate testing strategy for the requested AIS. Please ensure that all pertinent information is included on the intake cover sheet, including complete information for the Agency point of contact (including project managers email address), a detailed scope of work, and correct TMK(s) for the project area; also identify any federal permits or approvals required for this project.

You may contact Dr. Matthew Barker Fariss at matthew.b.fariss@hawaii.gov, or by phone at (808) 243-4626, to discuss this project or the contents of this letter.

Aloha,

Alan S. Downer, PhD
Administrator, State Historic Preservation Division
Deputy State Historic Preservation Officer

cc: Jeff Walsh
Business Development Director
Pacific Region for Anaergia Services, LLC
jeff.walsh@anaergia.com

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

State of Hawaii
Department of Land and Natural Resources
State Historic Preservation Division
Kakuhihewa Building 601
Kamokila Blvd, Suite 555
Kapolei, Hawaii 96707

SUBJECT: October 31, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project
Reference SHPD Doc No. 1710MBF15

Dear Dr. Downer:

Thank you also for providing your October 31, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. MANA understands from your letter that the SHPD requests that an archaeological inventory survey (AIS) be reviewed and accepted prior to initiation of project related work.

2. It is important to note that the project area has been substantially altered by the development of the existing WKWWRF. Recent archaeological monitoring associated with the WKWWRF tsunami revetment project in 2015 on a nearby portion of the subject property identified partly intact dune and marine sand deposits, but no historic properties or significant cultural materials (Fredericksen, 2015).

   Various safety hazards exist near the proposed project, including interference of aboveground high voltage power lines and underground wastewater and related utility lines that are critical to daily operations. The County expressed safety and operational concerns and the potential for negative public health consequences of inadvertent damage to any of the buried utilities during subsurface testing associated with an AIS.

3. Pursuant to receiving the October 31, 2017 SHPD letter, MANA met with Dr. Mathew B. Farris, Lead Archaeologist, Maui SHPD office, on November 7, 2017 to explain the prior archaeological history and the County's operational and safety concerns. As a result of the meeting, Dr. Farris believes, and MANA concurs, that preparation of an AIS will not be required and an archaeological monitoring plan (AMP) will be the methodology that provides the safest path forward for this project.

MANA
MAUI ALL NATURAL ALTERNATIVE

This strategy will allow for greater public health certainty and help minimize potential disruption of ongoing WKWWRF operations.

4. A new AIS will not be prepared for the project; instead a project specific AMP will be prepared for the subject project and will be submitted to the SHPD for review and acceptance prior to initiation of any ground altering activities within the proposed project area.

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

DAVID Y. IGE
GOVERNOR

FORD N. FUCHIGAMI
DIRECTOR

Deputy Directors
JADE T. BUTAY
ROSS M. HIGASHI
EDWIN H. SNIFFEN
DARRELL T. YOUNG

IN REPLY REFER TO:

STP 8.2150

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

June 7, 2017

Mr. Jeff Walsh, Project Business Development Manager
Maui All Natural Alternative (MANA), LLC
c/o Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

Dear Mr. Walsh:

Subject: Wailuku-Kahului Wastewater Reclamation Facility
Energy Independence Project
Early Consultation Request
Kahului, Maui, Hawaii
TMK: (2) 3-8-001:188 (por.)

Our Department of Transportation's (DOT) comments on the subject project are as follows:

Airports Division (DOT-AIR)

1. The nearest portion of the site area to Runway 3 at the Kahului International Airport (OGG) is approximately 1.2 miles. All projects within five (5) miles of a state airport must comply with the requirements of the Technical Assistance Memorandum (TAM), published in the September 8, 2016, issue of The Environmental Notice.

2. Installation of structures that may penetrate the Federal Aviation Administration (FAA) air space at the Kahului International Airport (OGG), pursuant to FAA's "Notice of Proposed Construction or Alteration" (also known as Form 7460-1), will require responsible parties to submit to FAA Form 7460-1 for approval prior to installation. This requirement is codified at Title 14, Part 77.9 of the Code of Federal Regulations. The management of FAA protected air space, with regard to height restriction, is applicable to tall equipment, such as cranes, that may be used during construction. FAA Form 7460-1 and criteria for its submittal can be found at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp

3. The proposed project shall mitigate all unpleasant odors generated by its operation.

4. All fugitive dust generated by the project shall be mitigated according to Hawaii State Department of Health standards.

5. Any activity that can potentially attract wildlife within five miles of the airport is discouraged. The proposed project shall meet the requirements of FAA Advisory Circular150/5200-33B Hazardous Wildlife Attractants on or Near Airports.

6. The proposed project shall mitigate any impacts on Airport traffic circulation.

Harbors Division (DOT-HAR)

While the proposed project is not anticipated to impact DOT-HAR infrastructure or operations, the draft environmental assessment (DEA) should discuss whether project traffic may affect access to Kahului Harbor on Hobron Avenue.

Highways Division (DOT-HWY)

Any potential traffic impacts to Hana Highway (Route 36) and nearby State highway facilities should be discussed in the DEA and addressed in a Traffic Assessment.

If there are any questions, please contact Mr. Norren Kato of the DOT Statewide Transportation Planning Office at telephone number (808) 831-7976.

Sincerely,

FORD N. FUCHIGAMI
Director of Transportation

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Ford M. Fuchigami, Director
State of Hawaii
Department of Transportation
809 Punchbowl Street
Honolulu, HI 96813

SUBJECT: June 7, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project
Reference Number: STP 8.2150

Dear Mr. Fuchigami:

Thank you also for providing your June 7, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

DOT-A

1. The proposed project will comply with the requirements of the Technical Assistance Memorandum (TAM) published in the September 8, 2016 issue of The Environmental Notice. The Draft EIS prepared for the project contains the necessary elements to comply with the TAM.

2. As required by CFR, Title 14, Part 77.9, MANA will submit FAA Form 7460-1, "Notice of Proposed Construction or Alteration" for approval prior to project construction.

3. The Draft EIS details public nuisance issues and mitigation measures to address and minimize impacts associated with public nuisance issues, including unpleasant odors. The State and County have regulatory processes in place to ensure that the project is not a public nuisance.

4. The Draft EIS details public nuisance issues and mitigation measures to address and minimize impacts associated with public nuisance issues, including fugitive dust. The State and County have regulatory processes in place to ensure that the project is not a public nuisance.

5. The proposed project is not intended to attract wildlife and will implement measures, such as enclosed working spaces, to minimize wildlife attraction. MANA will comply with the requirements of FAA Advisory Circular 150/5200-33B, "Hazardous Wildlife Attractants on or Near Airports".

MANA
MAUI ALL NATURAL ALTERNATIVE

6. The proposed project is not anticipated to have any impact on airport traffic.

DOT-HAR and DOT-HWY

1. The proposed project is anticipated to generate minimal traffic. The Draft EIS describes the additional traffic associated with the project, most of which will not be during the morning and afternoon peak hours of traffic.

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

26

ALAN M. ARAKAWA
Mayor

STEWART STANT
Director

MICHAEL M. MIYAMOTO
Deputy Director

MICHAEL RATTE
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

March 29, 2017

Mr. Jeff Walsh
Project Business Development Manager, Mana LLC
C/O Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

SUBJECT: WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY, ENERGY INDEPENDENCE PROJECT EARLY CONSULTATION TMK (2) 3-8-001:188 (POR.), KAHULUI

We reviewed the subject application and have the following comments:

1. Solid Waste Division comments:

   a. None.

2. Wastewater Reclamation Division (WWRD) comments:

   a. None.

If you have any questions regarding this letter, please contact Michael Miyamoto at 270-8230.

Sincerely,

MICHAEL M. MIYAMOTO
Deputy Director of Environmental Management

ALAN M. ARAKAWA
Mayor

STEWART STANT
Director

MICHAEL M. MIYAMOTO
Deputy Director

MICHAEL RATTE
Solid Waste Division

ERIC NAKAGAWA, P.E.
Wastewater Reclamation Division

COUNTY OF MAUI
DEPARTMENT OF
ENVIRONMENTAL MANAGEMENT
2050 MAIN STREET, SUITE 2B
WAILUKU, MAUI, HAWAII 96793

November 9, 2017

Mr. Jeff Walsh
MANA LLC
c/o County of Maui
Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

SUBJECT: MANA - RENEWABLE ENERGY CONVERSION & SLUDGE PROCESSING PROJECT REVISED ENVIRONMENTAL IMPACT STATEMENT REPARATION NOTICE (EISPN) TMK (2) 3-8-001:188, KAHULUI

We reviewed the subject application and have the following comments:

1. Solid Waste Division comments:

   a. None.

2. Wastewater Reclamation Division (WWRD) comments:

   a. Enclosed is a copy of Page 6 of the EISPN marked with comments. For reference, a copy of Sheet G10 from the As-Built Construction Plans for the Wailuku-Kahului Wastewater Reclamation Facility project is also enclosed.

If you have any questions regarding this letter, please contact Michael Miyamoto at 270-8230.

Sincerely,

MICHAEL M. MIYAMOTO
Deputy Director of Environmental Management

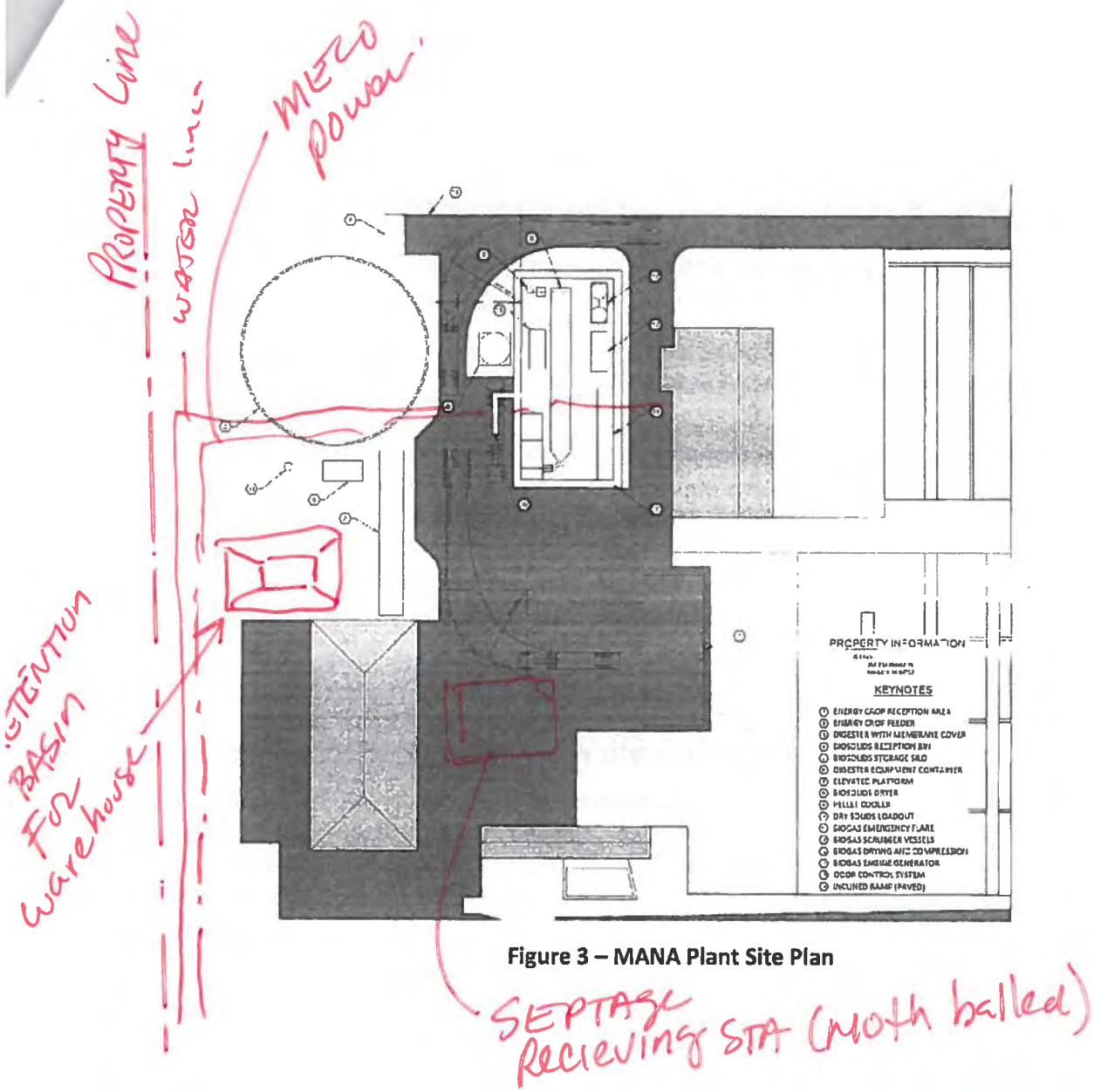


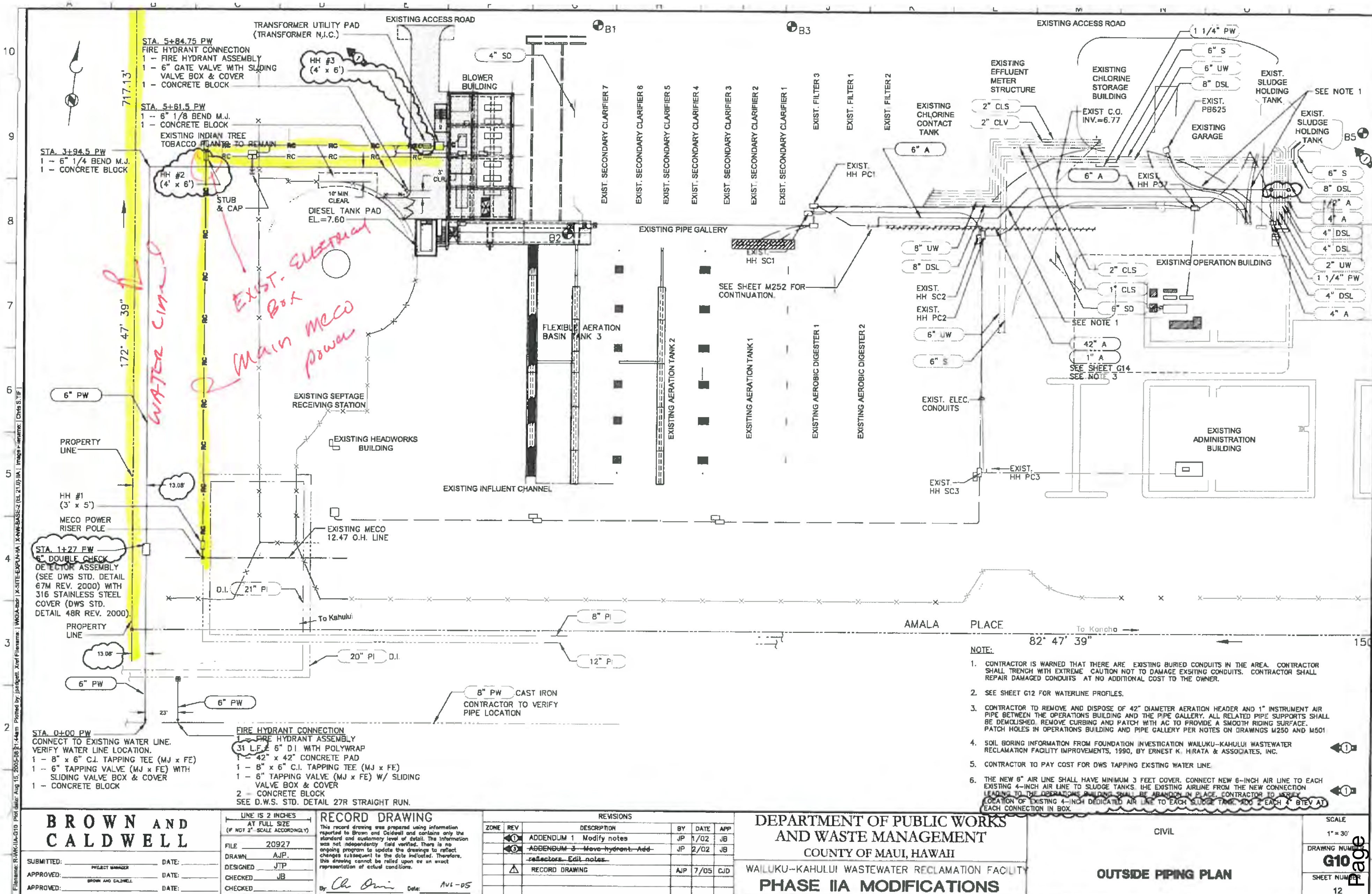
Figure 3 – MANA Plant Site Plan

Project Technical, Economic, Social, and Environmental Characteristics

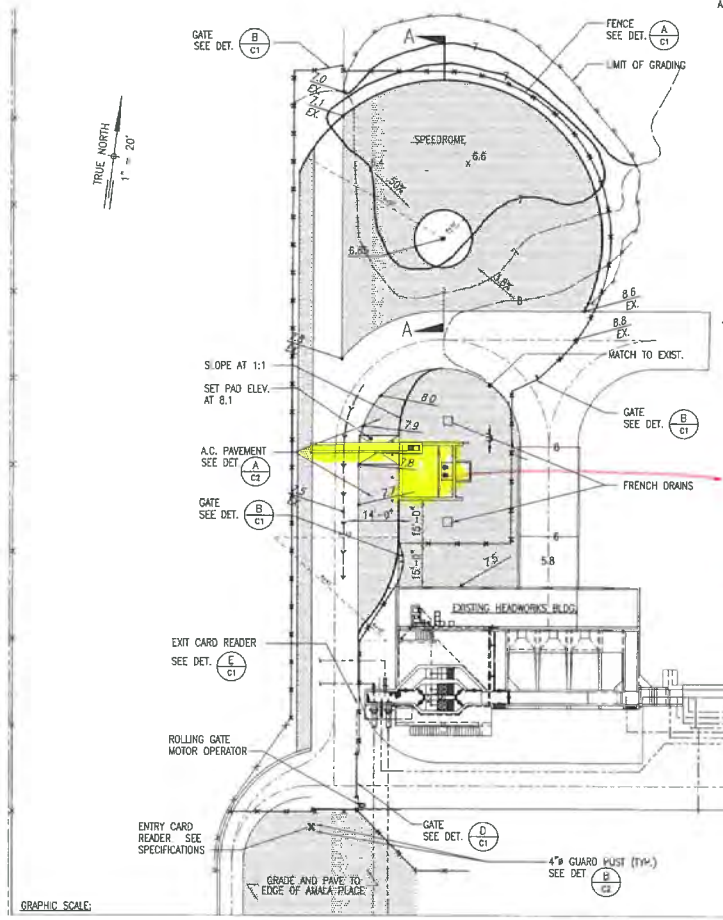
The Draft Environmental Impact Statement (DEIS) will contain a detailed description of the existing land use designations and current uses of the subject property. The property owner and other attributes of the property will be identified in the DEIS. The DEIS will also contain a detailed Project description, including technical data and diagrams, as well as the economics, phasing, and timing of the proposed action. Site plans and renderings will be provided to describe the final appearance of the Project.

Description of the Affected Environment

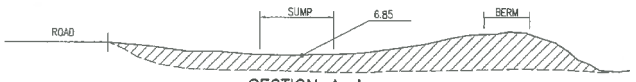
The DEIS will contain applicable regional, location and site maps to ensure that the project site is appropriately identified. The DEIS will also contain an applicable Flood Insurance Rate Map, United States Geological Survey topographic map, and other maps to adequately describe the physical environment of the region. The DEIS will also assess potential impacts and proposed



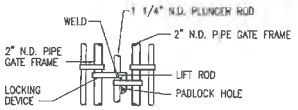
STA. 5+84.75 PW
FIRE HYDRANT CONNECTION
1 – FIRE HYDRANT ASSEMBLY
1 – 6" GATE VALVE WITH SLIDING VALVE BOX & COVER
1 – CONCRETE BLOCK
STA. 5+61.5 PW
1 – 6" 1/8 BEND M.J.
1 – CONCRETE BLOCK
EXISTING INDIAN TREE TOBACCO PLANT TO REMAIN
STA. 3+94.5 PW
1 – 6" 1/4 BEND M.J.
1 – CONCRETE BLOCK
HH #2 (4' x 6')
HH #3 (4' x 6')
STUB & CAP
TRANSFORMER UTILITY PAD (TRANSFORMER N.I.C.)
EXISTING ACCESS ROAD
BLOWER BUILDING
4" SD
DIESEL TANK PAD EL.=7.60
10' MIN CLEAR
717.13'
172° 47' 39"
WATER Line
EXIST. ELECTRICAL BOX
Main MECO power
6" PW
PROPERTY LINE
HH #1 (3' x 5')
MECO POWER RISER POLE
STA. 1+27 PW
6" DOUBLE CHECK DETECTOR ASSEMBLY (SEE DWS STD. DETAIL 67M REV. 2000) WITH 316 STAINLESS STEEL COVER (DWS STD. DETAIL 48R REV. 2000)
EXISTING SEPTAGE RECEIVING STATION
EXISTING HEADWORKS BUILDING
EXISTING INFLUENT CHANNEL
EXISTING MECO 12.47 O.H. LINE
D.I. 21" PI
To Kahului
20" PI D.I.
8" PI
12" PI
8" PW CAST IRON CONTRACTOR TO VERIFY PIPE LOCATION
STA. 0+00 PW
CONNECT TO EXISTING WATER LINE. VERIFY WATER LINE LOCATION.
1 – 8" x 6" C.I. TAPPING TEE (MJ x FE)
1 – 6" TAPPING VALVE (MJ x FE) WITH SLIDING VALVE BOX & COVER
1 – CONCRETE BLOCK
FIRE HYDRANT CONNECTION
1 – FIRE HYDRANT ASSEMBLY
31 L.F. 6" DI WITH POLYWRAP
1 – 42" x 42" CONCRETE PAD
1 – 8" x 6" C.I. TAPPING TEE (MJ x FE)
1 – 6" TAPPING VALVE (MJ x FE) W/ SLIDING VALVE BOX & COVER
2 – CONCRETE BLOCK
SEE D.W.S. STD. DETAIL 27R STRAIGHT RUN.
FLEXIBLE AERATION BASIN TANK 3
EXISTING AERATION TANK 2
EXISTING AERATION TANK 1
EXISTING AEROBIC DIGESTER 1
EXISTING AEROBIC DIGESTER 2
EXISTING PIPE GALLERY
EXIST. SECONDARY CLARIFIER 7
EXIST. SECONDARY CLARIFIER 6
EXIST. SECONDARY CLARIFIER 5
EXIST. SECONDARY CLARIFIER 4
EXIST. SECONDARY CLARIFIER 3
EXIST. SECONDARY CLARIFIER 2
EXIST. SECONDARY CLARIFIER 1
EXIST. FILTER 3
EXIST. FILTER 1
EXIST. FILTER 2
EXIST. HH SC1
SEE SHEET M252 FOR CONTINUATION.
EXIST. HH PC1
EXISTING CHLORINE CONTACT TANK
EXISTING EFFLUENT METER STRUCTURE
EXISTING CHLORINE STORAGE BUILDING
EXIST. C.O. INV.=6.77
EXISTING GARAGE
EXIST. PB625
EXIST. SLUDGE HOLDING TANK
SEE NOTE 1
EXISTING OPERATION BUILDING
EXISTING ADMINISTRATION BUILDING
EXIST. ELEC. CONDUITS
EXIST. HH SC2
EXIST. HH PC2
EXIST. HH SC3
EXIST. HH PC3
SEE SHEET G14
SEE NOTE 3
1 1/4" PW
6" S
6" UW
8" DSL
2" CLS
2" CLV
6" A
8" UW
42" A
1" A
4" DSL
4" A
2" UW
B1
B2
B3
B5
AMALA PLACE
To Kohoho
82° 47' 39"
NOTE:
1. CONTRACTOR IS WARNED THAT THERE ARE EXISTING BURIED CONDUITS IN THE AREA. CONTRACTOR SHALL TRENCH WITH EXTREME CAUTION NOT TO DAMAGE EXSITING CONDUITS. CONTRACTOR SHALL REPAIR DAMAGED CONDUITS AT NO ADDITIONAL COST TO THE OWNER.
2. SEE SHEET G12 FOR WATERLINE PROFILES.
3. CONTRACTOR TO REMOVE AND DISPOSE OF 42" DIAMETER AERATION HEADER AND 1" INSTRUMENT AIR PIPE BETWEEN THE OPERATIONS BUILDING AND THE PIPE GALLERY. ALL RELATED PIPE SUPPORTS SHALL BE DEMOLISHED. REMOVE CURBING AND PATCH WITH AC TO PROVIDE A SMOOTH RIDING SURFACE. PATCH HOLES IN OPERATIONS BUILDING AND PIPE GALLERY PER NOTES ON DRAWINGS M250 AND M501
4. SOIL BORING INFORMATION FROM FOUNDATION INVESTIGATION WAILUKU–KAHULUI WASTEWATER RECLAMATION FACILITY IMPROVEMENTS, 1990, BY ERNEST K. HIRATA & ASSOCIATES, INC.
5. CONTRACTOR TO PAY COST FOR DWS TAPPING EXISTING WATER LINE.
6. THE NEW 6" AIR LINE SHALL HAVE MINIMUM 3 FEET COVER. CONNECT NEW 6–INCH AIR LINE TO EACH EXISTING 4–INCH AIR LINE TO SLUDGE TANKS. THE EXISTING AIRLINE FROM THE NEW CONNECTION
EACH CONNECTION IN BOX.
BROWN AND CALDWELL
SUBMITTED: DATE:
APPROVED: DATE:
APPROVED: DATE:
LINE IS 2 INCHES AT FULL SIZE
FILE 20927
DRAWN AJP
DESIGNED JTP
CHECKED JB
RECORD DRAWING
REVISIONS
ADDENDUM 1 Modify notes JP 1/02 JB
ADDENDUM 3 Move hydrant. Add reflectors. Edit notes. JP 2/02 JB
RECORD DRAWING AJP 7/05 CJD
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
COUNTY OF MAUI, HAWAII
WAILUKU–KAHULUI WASTEWATER RECLAMATION FACILITY
PHASE IIA MODIFICATIONS
CIVIL
OUTSIDE PIPING PLAN
SCALE 1" = 30'
DRAWING NUMBER G10
SHEET NUMBER 12



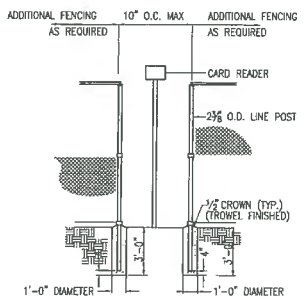
SITE PLAN
SCALE: 1"=20'



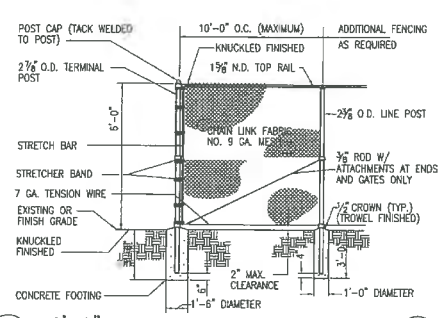
SECTION A-A
NO SCALE



LOCKING DEVICE DETAIL C C1
NOT TO SCALE

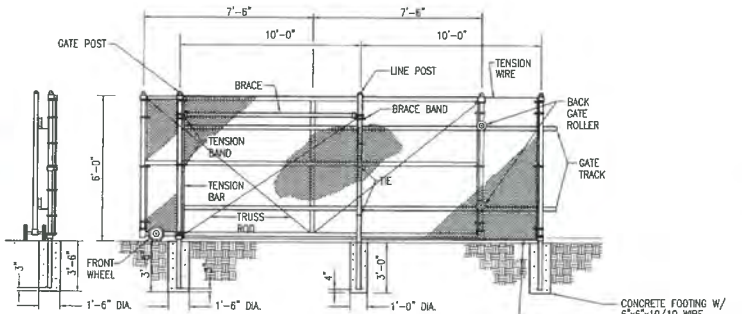


EXIT CARD READER PLACEMENT DETAIL E C1
NOT TO SCALE

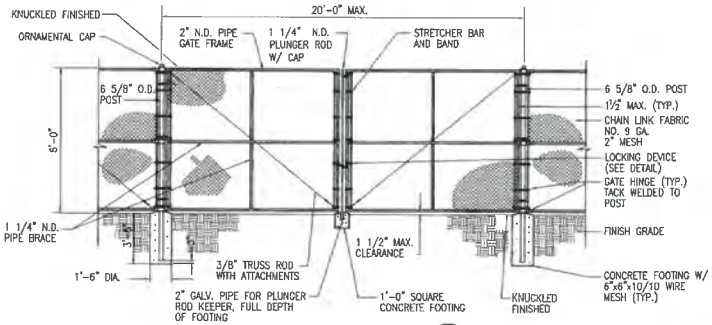


6'-0" HIGH CHAIN LINK FENCE DETAIL A C1
NOT TO SCALE

NOTE:
1. POSTS, BRACES AND GATE FRAMES SHALL BE SCHEDULE 40 (STANDARD WEIGHT) PIPE. SIZES SPECIFIED ARE OUTSIDE DIAMETER.
2. SERVICE GATE SHALL BE PROVIDED WITH TUBULAR PLUNGER BAR, 1 LOCK KEEPER, 1 LOCK BEEPER GUIDE, 2 LATCH FORKS, 2 FORK CATCHES, 1 CATCH FOR PLUNGER BAR, AND 2 GATE STOPS LOCATED AS DIRECTED BY THE ENGINEER.
3. CORNER FITTINGS FOR GATE FRAMES MAY BE USED IN LIEU OF WELDING.
4. GATE SHALL HAVE KNUCKLED SELVAGE TOP AND BOTTOM.
5. TOP OF CONCRETE FOOTING SHALL BE CROWNED TO SHED WATER.
6. TOP RAIL COUPLINGS SHALL BE LOCATED WITHIN 6" OF LINE POSTS.



6'-0" MANUAL ROLLING GATE DETAIL D C1
NOT TO SCALE



6'-0" SERVICE GATE DETAIL B C1
NOT TO SCALE

RECORD DRAWING
DATE 5/1/20

ZONE	NUMBER	REVISION DESCRIPTION	MADE BY	DATE	CHECKED

M&E PACIFIC, INC.
ENGINEERS & ARCHITECTS
HONOLULU, HAWAII

DESIGNED | DRAWN
CHECKED
APPROVED | APPROVED

LINE IS 2 INCHES AT FULL SIZE (IF NOT 2", SCALE ACCORDINGLY)

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

WAILUKU-KAHULUI
WASTEWATER RECLAMATION FACILITY
SEPTAGE RECEIVING STATION

SITE AND GRADING PLAN, FENCE AND GATE DETAIL

DRAWING C1
SHEET OF 27 SHEETS

MANA
Maui All Natural Alternative

December 16, 2017

Stewart Stant, Director
County of Maui
Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, HI 96793

SUBJECT: March 29 and November 9, 2017 Comment Letters Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Mr. Stant:

Thank you also for providing your March 29 and November 9, 2017 comments for the proposed project. In response to your letters, MANA will review the as-built plan sheets that you provided and will incorporate necessary elements into the design.

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

DEPARTMENT OF
HOUSING AND HUMAN CONCERNS
COUNTY OF MAUI

ALAN M. ARAKAWA
Mayor
CAROL K. REIMANN
Director
JAN SHISHIDO
Deputy Director

2200 MAIN STREET • SUITE 546 • WAILUKU, HAWAII 96793 • PHONE (808) 270-7805 • FAX (808) 270-7165
MAILING ADDRESS: 200 SOUTH HIGH STREET • WAILUKU, HAWAII 96793 • EMAIL: director.hhc@mauicounty.gov

September 26, 2017

Jeff Walsh
Project Business Development Manager
MANA LLC.
C/O County of Maui
Dept. of Environmental Management
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

Dear Mr. Walsh:

SUBJECT: WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY (WKWWRF) ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN)

In response to your request for comments regarding MANA's intent to build a renewable energy conversion and sludge processing plant for the Wailuku-Kahului Wastewater Reclamation Facility, the department has no comments to offer.

Sincerely,

CAROL K. REIMANN
Director of Housing and Human Concerns

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Carol Reimann, Director
County of Maui
Department of Housing and Human Concerns
200 South High Street
Wailuku, HI 96793

SUBJECT: September 26, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Ms. Reimann:

Thank you also for providing your September 26, 2017 no comment letter for the proposed project.

We will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

ALAN M. ARAKAWA
Mayor

KA'ALA BUENCONSEJO
Director

BRIANNE L. SAVAGE
Deputy Director

(808) 270-7230
FAX (808) 270-7934

DEPARTMENT OF PARKS & RECREATION

700 Hali'a Nakoa Street, Unit 2, Wailuku, Hawaii 96793

October 20, 2017

Mr. Jeff Walsh, Project Business Development Manager
MANA LLC
c/o County of Maui
Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, HI 96793

Dear Mr. Walsh:

SUBJECT: PROPOSED RENEWABLE ENERGY CONVERSION AND SLUDGE PROCESSING PROJECT

Thank you for the opportunity to review and comment on the subject project. The Department of Parks and Recreation has no comment at this time, and looks forward to reviewing the Environmental Impact Statement when it is available.

Should you have any questions or concerns, please feel free to contact me or Robert Halvorson, Chief of Planning and Development, at (808) 270-7931.

Sincerely,

KA'ALA BUENCONSEJO
Director of Parks & Recreation

c: Robert Halvorson, Chief of Planning and Development

KB:RH:do

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Kaala Buenconsejo, Director
County of Maui
Department of Parks and Recreation
200 South High Street
Wailuku, HI 96793

SUBJECT: October 20, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Mr. Buenconsejo:

Thank you also for providing your October 20, 2017 no comment letter for the proposed project.

We will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

24

Walsh Jeff

From: Walsh Jeff
Sent: Tuesday, September 5, 2017 2:51 PM
To: 'James Buika'
Cc: Clayton Yoshida; Jeffrey Dack
Subject: RE: Req for Early Comments from the Planning Department (RFC 20170035)

Aloha James and thanks for the response

We have made a determination that we will be completing a direct to EIS and hope to have a revised EISPN for the September 8th 30 day publication.

We will of course send an updated notice via mail plus email you to confirm the publication date and off course provide a draft of the EIS once compiled.
Thank you

Have a safe day

Best Regards
Jeff Walsh

From: James Buika [mailto:James.Buika@co.maui.hi.us]
Sent: Tuesday, September S, 2017 2:43 PM
To: Walsh Jeff <Jeff.Walsh@anaergia.com>
Cc: Clayton Yoshida <Clayton.Yoshida@co.maui.hi.us>; Jeffrey Dack <Jeffrey.Dack@co.maui.hi.us>
Subject: Req for Early Comments from the Planning Department (RFC 20170035)

Dear Jeff, On March 10, the Department of Planning received your attached request letter dated February 28, 2017. Planner Jim Buika is very familiar with the project site.

This email serves as early consultation official response from the Planning Department on your project request for comments.
The Department has the following comments:
1) The Planning Department is in favor of your project;
2) The project will require a Special Management Area assessment application;
3) Please provide the Department of Planning with a copy of the Draft EA for review, once completed.

Thank you for this early opportunity to provide comments on the project.

If you have any questions or require planning guidance on the project, please call me.

Jim Buika, Planner
Department of Planning
Current Division
County of Maui
2200 Main Street, Suite 619

25

ALAN M. ARAKAWA
Mayor

DAVID C. GOODE
Director

ROWENA M. DAGDAG-ANDAYA
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

GLEN A. UENO, P.E., P.L.S.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

JOHN R. SMITH, P.E., ACTING
Highways Division

April 17, 2017

Mr. Jeff Walsh
Project Business Development Manager, MANA LLC
c/o Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Maui, Hawaii 96793

Dear Mr. Walsh:

SUBJECT: EARLY CONSULTATION REQUEST
WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY
ENERGY INDEPENDENCE PROJECT
TMK: (2) 3-8-001:188 (POR.)

We reviewed your early consultation request and have no comments at this time.

If you have any questions regarding this memorandum, please call Rowena Dagdag-Andaya at 270-7845.

Sincerely,

DAVID C. GOODE
Director of Public Works

DCG:RMDA:da
xc: Engineering Division
S:\DSA\Engr\CZM\Draft Comments\38001188_wailuku-kahului_wwrd_facility_ec.rtf

26

ALAN M. ARAKAWA
Mayor

DAVID C. GOODE
Director

ROWENA M. DAGDAG-ANDAYA
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

GLEN A. UENO, P.E., P.L.S.
Development Services Administration

CARY YAMASHITA, P.E.
Engineering Division

JOHN R. SMITH, P.E.
Highways Division

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
200 SOUTH HIGH STREET, ROOM NO. 434
WAILUKU, MAUI, HAWAII 96793

October 18, 2017

Mr. Jeff Walsh
Project Business Development Manager
MANA LLC.
c/o County of Maui, Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, Maui, Hawaii 96793

Dear Mr. Walsh:

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE (EISPN) FOR INCORPORATION INTO DRAFT EIS FOR MAUI ALL NATURAL ALTERNATIVE (MANA) FOR THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY

We reviewed the subject application and have no comments at this time.

If you have any questions regarding this memorandum, please call Rowena Dagdag-Andaya at 270-7845.

Sincerely

DAVID C. GOODE
Director of Public Works

DCG:RDA:da
xc: Engineering Division
S:\DSA\Engr\CZM\Draft Comments\mana_wailuku_kahului_wwrd_facility-pre_eis.rtf

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

David Goode, Director
County of Maui
Department of Public Works
200 South High Street
Wailuku, HI 96793

SUBJECT: April 17 and October 18, 2017 Comment Letters Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Mr. Goode:

Thank you also for providing your April 17 and October 18, 2017 no comment letters for the proposed project.

We will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

24

Walsh Jeff

From: Walsh Jeff
Sent: Monday, March 13, 2017 3:08 PM
To: Marti Buckner
Cc: Audrey Dack
Subject: Re: Early Consult for Kahului WW Reclamation Facility TMK 238001188

Thanks Marti for the call
I am on Maui this Tuesday and Wednesday
Let me know if you wish to have a follow up and update meeting
Best Regards
Jeff Walsh

Sent from my iPhone

On Mar 13, 2017, at 2:54 PM, Marti Buckner <Marti.Buckner@co.maui.hi.us> wrote:

> Aloha Jeff,
> Thank you for taking the time to speak with me this afternoon. This is to let you know that the Department of Water Supply (DWS) will make comments when the draft EA is published.
> Mahalo,
>
> Marti Buckner
> Water Resources Planner
>
> Department of Water Supply
> County of Maui
> 200 South High Street
> Wailuku, HI 96793
>
> (808) 463-3104
> Fax: 463-3112

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Council Member Alika Atay
County of Maui
200 South High Street
Wailuku, HI 96793

SUBJECT: Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Council Member Atay:

Thank you for meeting with us on March 23rd and March 28th, 2017 and for your guidance with respect to our project. We summarized our understanding of the meeting and included this summary with this letter.

We will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

MANA
Maui All Natural Alternative

Meeting notes with Alika Atay Maui County Council, Water Resources Chairman; March 23rd, 2017:

General Notes: We met with Councilman Atay and his staff on two different occasions:

March 23rd

A tour of the Keihi Waste Water Treatment Facility and MANA project update meeting with Mr. Atay and his staff was arranged by Stewart Sant Director of Environmental Management, County of Maui and attended by Jeff Walsh, Business Development Director, and Anaergia. The purpose of the tour was to provide Mr. Atay insight to water purification and the beneficial use of R1 classified water. Upon completing the tour we had an informal meeting with him and his staff and provided an informational session with specific details on the MANA project. We provided a project overview description including layout design, provisions for diverting all the Municipal Solid Waste from the present storage and minimal composting activities at the landfill site. We also shared with him equipment specifications, project location, design and permitting considerations. His feedback and comments were positive relating to both firm renewable energy supplying a County Facility, powered by locally grown crops and sludge drying process of 24,000 tons of municipal dewatered sludge being converted into Class A fertilizer for beneficial use.

March 28th

A follow up meeting was held on Maui with Mr. Atay and his staff and included Dr. Benedek CEO of Anaergia, Arun Sharma, Global Lead, Build Own Operate, Jeff Walsh, Stewart Stant County of Maui and his Staff. The purpose of the meeting was to further acquaint Mr. Atay and his staff with the environmental, economic and sustainability attributes of the MANA project and to seek additional advice regarding questions and comments for the Environmental Assessment Draft.

He explained the need for projects' such as MANA to have community involvement with an educational agricultural approach. More specifically, engage the local community with sustainably practices such as producing a "Made on Maui" renewable energy source to fuel a public purpose project. He also discussed the benefits of converting municipal dewatered sludge into a sustainable and environmental sound product that can be land applicable for various agricultural uses.

We concluded the meeting and agreed to meet again over the next few months during the EA draft process.

HOUSE OF REPRESENTATIVES
STATE OF HAWAII
STATE CAPITOL
HONOLULU, HAWAII 96813

March 9, 2017

Mr. Jeff Walsh
Project Business Development Manager, MANA LLC
C/O Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, HI 96793

Dear Mr. Walsh,

Thank you for your letter dated February 28th, 2017 regarding MANA's plan to incorporate a renewable energy and sludge processing facility at the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF). As Representative of District 9 (Kahului, Puunene, Old Sand Hills, Maui Lani), I appreciate the opportunity to raise concerns and to provide comments.

While I support the projects goal of reducing greenhouse gas emissions and increasing renewable energy usage, here are some of my concerns:

- Are there any public nuisance issues that are foreseeable that should be addressed?
- Will the project require gas or odor catchment systems?
- Are there any explosion risks or safety hazards that should be addressed?

I realize that some, if not all, of these concerns may already have been addressed, or will be addressed with the forthcoming environmental assessment. I would appreciate any information you can provide. In addition to mail, I can be contacted by email at repwoodson@capitol.hawaii.gov, or by phone at (808) 586-6210.

Mahalo,

Mahalo,

Representative Justin H. Woodson

State Capitol, Room 405
415 S Beretania Street
Honolulu, Hawaii 96813

808-586-6210
repwoodson@capitol.hawaii.gov

Representative Justin H. Woodson
District 9
Kahului • Puunene
Old Sand Hills • Maui Lani

Chair Committee on
Higher Education
Member Committees on:
Education, Intrastate and Commerce,
Tourism, and Veterans, Military,
International Affairs,
and Culture and the Arts

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Representative Justin H. Woodson
House of Representatives
State Capitol
Honolulu, HI 96813

SUBJECT: March 9, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Representative Woodson:

Thank you also for providing your March 9, 2017 comments for the proposed project. In response to your questions and comments, please see our remarks below.

1. The Draft EIS prepared for the project details public nuisance issues and mitigation measures to address and minimize impacts associated with public nuisance issues. The State and County have regulatory processes in place to ensure that the project is not a public nuisance.

2. The Draft EIS contains a description of the catchment, controls, and monitoring systems included in the project design to minimize public nuisance, such as gas and odor.

3. The Draft EIS contains discussions on explosion and safety risk (both minimal). The project design and construction best management practices were prepared to address explosion and safety risk.

Again, thank you for providing comments and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

Subject: ENVIRONMENTAL IMPACT STATEMENT PREPARATION NOTICE FOR MAUI ALL NATURAL ALTERNATIVE, LLC's "RENEWABLE ENERGY CONVERSION AND SLUDGE PROCESSING FOR THE WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY (WKWWRF)" PROJECT.

Aloha Mr. Glenn and Mr. Stant:

Please add Maui Tomorrow Foundation as a consulted party in the preparation of this EIS.

However, before the EIS process can commence there must be publication of a notice that complies with the legal requirements of Chapter 343, HRS. In this case the notice filed was defective on its face for the following reasons:

PROCEDURAL IRREGULARITIES ASSOCIATED WITH THE NOTICE PUBLISHED JUNE 23

1. The OEQC publication form as submitted fails to identify this as an agency action under Section 343(5)(b). It is a project on land owned by the State and managed by the County under an Executive Order. See EISPN, at 1 under "Project Location". The site has been the location of a publicly owned treatment facility (POTW) under the Clean Water Act for many years. The County went through a public procurement under Section 103D for the work subject to this EISPN.

2. The form as filed does not advise the public of other 343-5 Triggers including Trigger 3, "work in a shoreline area, and Trigger 9, "work on a wastewater treatment unit or power generating facility."

3. The approving agency notice of determination letter does not follow the OEQC template and is inherently confusing as it tries to say that the County Department of Environmental Management (DEM) is the "approving agency," when in fact it is the proposing agency.

4. The DEM Notice of Determination letter is defective as it does not identify an accepting agency. It is not permissible to identify the political subdivision as a whole (the "County" or the "State"). The DEM Notice of Determination purports to meet OEQC requirements by stating that [t]he County will be the accepting authority for the Draft Environmental Impact Statement" (DEM Notice of Determination dated June 13, at 1).

GENERAL COMMENTS ON THE COUNTY'S PROPOSED ACTIONS

We respectfully offer the following comments at this preliminary stage. We will not be able to take a final position on the project until it becomes possible to make a well-informed assessment of its ultimate environmental impacts.

(1) Producing and storing flammable gas in a tsunami zone next to a wildlife sanctuary, especially when the area is served by only one road that itself is subject to periodic flooding, subjects the public and protected wildlife to a new and potentially unnecessary risk of fire and

explosion. The EIS should examine how this risk can be justified, and should evaluate the impacts therefrom.

(2) The financial underpinnings of this project assume that no "exit fee" will be assessed by MECO when one of the largest loads on the grid tries to take that load off grid. Utilities can and will react economically to attempts to go off grid. The EIS should examine the cradle-to-grave cost for this project.

(3) The EISPN was prepared by an unnamed person employed by Anaergia, the proposed operator of the facility via a wholly owned subsidiary, Maui All Natural Alternative LLC. The filing shows a lack of familiarity with the OEQC "Guidebook" published and regularly updated since 1997 as well as the OEQC template documents available on the web.

(4) The notion that there will be a reduction in the carbon footprint of the facility is questionable; this should be the subject of rigorous analysis. Carbon will be released by burning methane, and each of the areas used to dewater sludge is likely to be a source of VOC emissions to the environment that will have to be regulated under the Clean Air Act or Clean Water Act. The cradle-to-grave carbon budget for this project should be evaluated in the EIS.

(5) Producing methane from growing sorghum may be "renewable", but it is not a low carbon process; much CO2 will be emitted. This could be avoided if the county were to use solar or wind power instead. Biogas (methane) is not "sustainable" because it increases - not reduces -the adverse effects of global warming. The EIS should examine the overall greenhouse gas generation of other alternatives for energy generation, including solar and wind.

(6) The EIS should evaluate the alternative of simply transporting methane from the landfill to the wastewater treatment plant site.

Mahalo for the opportunity to comment,

Albert Perez
Executive Director
Maui Tomorrow Foundation, Inc.

MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Albert Perez, Executive Director
Maui Tomorrow Foundation, Inc.

SUBJECT: July 21, 2017 Comment Letter Regarding the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Mr. Perez:

Thank you for the phone call with us on March 23rd, 2017 and for your guidance with respect to our project. We summarized our understanding of the call and included this summary with this letter. Thank you also for providing your July 21st, 2017 comments for the proposed project. In response to your questions and comments from your July 21, 2017 letter, please see our remarks below.

1. Based on input MANA received from you, MANA updated the EISPN and the updated EISPN was published in the Environmental Notice on September 8, 2017. Regarding the topic of agency versus applicant action, subsequent to receiving your July 21, 2017 letter, MANA had several discussions with the County of Maui, Department of Environmental Management (DEM). The outcome of the discussions was the DEM did not believe, since this proposed project will be a privately owned and operated, that this is an agency action. While it is true that the project will be constructed on lands under the DEM control, the DEM insisted that the applicant pursue the EIS as an applicant action and not an agency action. MANA further consulted with OEQC, who replied that it is the agency's decision on whether or not it will pursue an agency action. Therefore, an applicant action is being pursued.

2. The aforementioned updated EISPN was updated to reflect the additional EA triggers noted.

3. The aforementioned updated EISPN was updated to reflect the DEM as the accepting authority for the EIS. As detailed in bullet 1, the DEM is not the proposing agency.

4. The aforementioned updated EISPN was updated to reflect the DEM as the accepting authority.

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In regard to your general comments, please see below.

1. The proposed project will be designed in accordance with Federal and County design standards in the flood zone. The project will be designed with appropriate safeguards to protect the public from accidental releases of gas or other emissions. MANA will implement necessary measures to protect the environment as best as possible to minimize impacts due to flooding and tsunami events.

2. The WKWWRF will not be taken off the MECO grid. Instead, much of the fossil fuel derived power supplied by MECO will be displaced by the renewable natural gas generated by the proposed project. During normal operations, the WKWWRF will be supplied by both MECO and MANA power, with additional backup power provided by an on-site DEM electrical generator.

3. The EIS is being prepared with several local consultants as well as mainland consultants, whose expertise provides insight into potential impacts and mitigation measures for the proposed project. The OEQC guidebook on the Hawaii Environmental Policy Act was utilized and will continue to be utilized as a guide for preparing the EIS documents. The EIS process is designed to offer stages of public input to ensure that serious concerns are appropriately addressed. MANA does not believe that utilizing a third-party consultant to package the EIS is necessary.

4. The *Air Quality, Odor, and Climate Change Impact Assessment* included in the Draft EIS quantifies the project greenhouse gas emissions and climate change impacts of the project. To the degree that MANA-supplied power displaces the MECO-supplied power currently used by WKWWRF, a reduction in GHG emissions will occur. This is because the produced biogas combusted in the CHP engine will create primarily "biogenic CO_2" as defined in 40 CFR §98.6, which is typically excluded from a stationary source's GHG emission inventory on the basis that it does not contribute to climate change over a period of time. However, even if these emissions are not excluded, they are well below the Significant Emissions and GHG Reduction Plan Thresholds established by the Hawaii Department of Health, Clean Air Branch, and found at found at §11-60.1-1 and §11-60.1-204 of the Hawaii Administrative Rules, respectively.

5. For the alternatives analysis, MANA engaged in discussions with the County of Maui Energy Commissioner to develop and critique the alternatives that the County might consider for renewable energy use (inclusive of wind and solar) at the WKWWRF. The County Energy Commissioner provided considerable insight in the development of the alternatives analysis. Due to physical constraints and the lack of economic viability, the wind and solar options were not feasible and, as such, were not further analyzed from a greenhouse gas perspective.

MANA
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6. The potential use of landfill gas collected at the Central Maui Landfill was also evaluated within the context of the alternatives analysis. An insurmountable obstacle to this alternative is that fact that the gas is under contract to Maui Resource Recovery Facility, LLC, a subsidiary of Anaergia Services, and therefore not available to MANA. As a result, there is a highly likelihood that a beneficial use of the landfill gas will be realized in the near future (e.g., for a landfill gas-to-energy project). The proposed project creates an entirely separate and parallel source of renewable, biogas-produced energy that is surplus to the landfill gas. MANA would be the first such commercial-scale project in Hawaii. It is believed that significant utilization of energy crops will be needed for the state to meet its 2045 statutory requirement to deliver 100% renewable electricity via the grid.

Again, thank you for providing comments to the EISPN and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

MANA
MAUI ALL NATURAL ALTERNATIVE

Phone conversation notes with Albert Perez; Executive Director; Maui Tomorrow: March 23rd, 2017:

General Notes:

The informal call with Albert Perez on March 23rd was an informational session and opportunity to share with him specific details with the MANA project. A project overview description was provided which included feedstock provisions, equipment specifications, project location, design and permitting considerations. I explained the relationship with the County providing firm renewable energy to the entire Kahului- Wailuku Wastewater Reclamation Facility (KWWRF). I also explained the sludge drying process and how approximately 24,000 tons of Municipal Produced Sludge will be processed and converted into Class A fertilizer.

Mr. Perez provided feedback including concern with the location being in proximity to the Pacific Ocean shoreline. He mentioned the existing KWWRF is subjected to potential relocation and expressed concern with expanding the current facility infrastructure. He indicated the proposed site of the MANA project being constructed within the KWWRF is in a Tsunami and flood hazard inundation zone. I mentioned we are including mitigation steps with the design of the structures to ensure compliance with all permits and guidelines. I mentioned I would be following up within a few weeks with a pictorial presentation of the project including the proposed layout plans

Mr. Perez voiced his concern with the water supply for irrigation of the feedstock crops provided to the project by Hawaiian Commercial and Sugar. His comments included water rights for the Central Maui agricultural diversification plan post closure of sugarcane operations and how this would continue to affect competing rights of water for local farming activities. His question was what would be the source of the water needed for irrigation for the approximate 500 acres needed for production of the biomass to biogas fuel for the project. I mentioned that this question would be best answered by HC&S and he agreed and that he would reach out to them.

I offered a follow up meeting and presentation for the project as we develop the Environmental Assessment (EA) Draft and would notify him once we were in the EA draft stage.

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SIERRA CLUB OF HAWAIʻI
MAUI GROUP

July 24, 2017

TO: Stewart Stant, Director, Maui County Department of Environmental Management

CC: Jeff Walsh, Maui All Natural Alternative, LLC (MANA);
Scott Glenn, Director, Hawaiʻi State Office of Environmental Quality Control

RE: Comments on Renewable energy conversion and sludge processing for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF) EISPN

Aloha kākou,

Thank you for this opportunity to provide comments on the Environmental Impact Statement Preparation Notice submitted by MANA for its proposed renewable energy conversion and sludge processing facility at WKWWRF.

The Sierra Club Maui Group has heard from numerous community members about their concerns regarding this project. Some of our main concerns are as follows:

1. Conflict of Interest: Currently, the county is both the proposing agency and the accepting agency, which is a clear conflict of interest. Because the project will be built on state-owned land, we ask that a state agency be the accepting agency. This will resolve this conflict of interest.

2. Third Party Consultation: We are concerned that this project's FEIS has not been outsourced to a non-partial third party consultant. If MANA researches and writes its own FEIS, it is very unlikely that potentially serious concerns will be highlighted and examined and that feasible alternatives will be given fair consideration.

3. Local knowledge: We are concerned that because no local expert consultants have been hired to assess all potential environmental and cultural impacts (especially on the local bird populations in the Kanahā Wildlife Sanctuary) that the FEIS will be severely lacking

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in important local expertise. We would like to see local avian experts brought on board to analyze this project.

4. Tsunami Zone: We are very worried about not only placing more expensive long-term infrastructure in the tsunami zone but also the effects it may have on the environment if a tsunami or extreme flooding event happens. If a catastrophe occurs, how will MANA mitigate the risk of waste, flammable gas, and other toxic emissions escaping from the facility into the surrounding industrial and residential areas?

5. MECO: How will the county negotiate with MECO to take the WKWWRF off its grid? What might be the exit costs of taking the facility off the grid?

6. Energy Analysis: For the "Identification of Alternatives," we would like independent energy and waste consultants who have no connection to MANA to create a more robust list of potential alternatives and analysis of their pros and cons.

7. Carbon and methane footprint: While the facility will create energy from renewable resources, we have doubts as to whether it will actually reduce our carbon and methane footprint. We would like the FEIS to contain a complete analysis of the full carbon and methane footprint of the facility, as well as a listing of any VOC emissions that may occur.

We would like to continue to be listed as a concerned party and receive updates on this project moving forward. Mahalo again for this opportunity to provide comments.

Aloha,

Adriane Raff Corwin,

Coordinator of Sierra Club Maui Group

35

SIERRA CLUB OF HAWAI'I
MAUI GROUP

July 24, 2017*

TO: Stewart Stant, Director, Maui County Department of Environmental Management

CC: Jeff Walsh, Maui All Natural Alternative, LLC (MANA);
Scott Glenn, Director, Hawai'i State Office of Environmental Quality Control

RE: Comments on Renewable energy conversion and sludge processing for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF) EISPN

Aloha kākou,

Thank you for this opportunity to provide comments on the Environmental Impact Statement Preparation Notice submitted by MANA for its proposed renewable energy conversion and sludge processing facility at WKWWRF.

The Sierra Club Maui Group has heard from numerous community members about their concerns regarding this project. Some of our main concerns are as follows:

1. Conflict of Interest: Currently, the county is both the proposing agency and the accepting agency, which is a clear conflict of interest. Because the project will be built on state-owned land, we ask that a state agency be the accepting agency. This will resolve this conflict of interest.

2. Third Party Consultation: We are concerned that this project's FEIS has not been outsourced to a non-partial third party consultant. If MANA researches and writes its own FEIS, it is very unlikely that potentially serious concerns will be highlighted and examined and that feasible alternatives will be given fair consideration.

3. Local knowledge: We are concerned that because no local expert consultants have been hired to assess all potential environmental and cultural impacts (especially on the local bird populations in the Kanahā Wildlife Sanctuary) that the FEIS will be severely lacking

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in important local expertise. We would like to see local avian experts brought on board to analyze this project.

4. Tsunami Zone: We are very worried about not only placing more expensive long-term infrastructure in the tsunami zone but also the effects it may have on the environment if a tsunami or extreme flooding event happens. If a catastrophe occurs, how will MANA mitigate the risk of waste, flammable gas, and other toxic emissions escaping from the facility into the surrounding industrial and residential areas?

5. MECO: How will the county negotiate with MECO to take the WKWWRF off its grid? What might be the exit costs of taking the facility off the grid?

6. Energy Analysis: For the "Identification of Alternatives," we would like independent energy and waste consultants who have no connection to MANA to create a more robust list of potential alternatives and analysis of their pros and cons.

7. Carbon and methane footprint: While the facility will create energy from renewable resources, we have doubts as to whether it will actually reduce our carbon and methane footprint. We would like the FEIS to contain a complete analysis of the full carbon and methane footprint of the facility, as well as a listing of any VOC emissions that may occur.

We would like to continue to be listed as a concerned party and receive updates on this project moving forward. Mahalo again for this opportunity to provide comments.

Aloha,
Adriane Raff Corwin,
Coordinator of Sierra Club Maui Group

*Comments submitted in July 2017 for the original EISPN, and we find these comments still apply to the resubmitted September 2017 EISPN for this project.

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MANA
MAUI ALL NATURAL ALTERNATIVE

December 16, 2017

Adriane Raff Corwin, Coordinator
Sierra Club Maui Group

SUBJECT: July 24, 2017 Comment Letter Regardingthe Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Dear Ms. Corwin:

Thank you for meeting with us on March 29th, 2017 and for your guidance with respect to our project. We summarized our understanding of the meeting and included the meeting summary with this letter. Thank you also for providing your July 24, 2017 comments for the proposed project. In response to your questions and comments from your July 24, 2017 letter, please see our remarks below.

1. Conflict of Interest: MANA sought clarity from OEQC and the County of Maui, Department of Environmental Management (DEM) regarding the appropriate entity to be the accepting authority for the EIS. The DEM also consulted with the State of Hawaii, Department of Land and Natural Resources (DLNR) to determine who would be an appropriate accepting authority. The DNLR provided a comment letter agreeing with the assignment of the County as the accepting authority for the project. Mayor Arakawa has delegated this authority to the DEM. The project will require a Special Management Area Permit and a Conservation District Use Permit, both of which require public hearings for additional public input on the project. Consequently, the DEM believes that it is an appropriate entity to be the accepting authority for the EIS.

2. The EIS is being prepared with several local consultants as well as mainland consultants, whose expertise provides insight into potential impacts and mitigation measures for the proposed project. The EIS process is designed to offer stages of public input to ensure that serious concerns are appropriately addressed. MANA has developed a detailed list of alternatives, many of which proved unfeasible when taking into account fiscal, space, and impact analyses. MANA does not believe that utilizing a third-party consultant to package the EIS is necessary.

3. As previously mentioned, several local expert consultants, including a wildlife biologist, a civil engineer, and an archaeologist, all with decades of experience on Maui are some of the expert consultants utilized for the project. MANA does not believe that these consultants are lacking in local expertise.

MANA
MAUI ALL NATURAL ALTERNATIVE

4. The proposed project will be designed in accordance with Federal and County design standards in the flood zone. The project will be designed with appropriate safeguards to protect the public from accidental releases of methane gas or other emissions. MANA will implement necessary measures to protect the environment as best as possible to minimize impacts due to flooding and tsunami.

5. The WKWWRF will not be taken off the MECO grid. Instead, much of the fossil fuel derived power supplied by MECO will be displaced by the renewable natural gas generated by the proposed project. During normal operations, the WKWWRF will be supplied by both MECO and MANA power, with additional backup power provided by an on-site DEM electrical generator.

6. For the alternatives analysis, MANA engaged in discussions with the County of Maui Energy Commissioner to develop and critique the alternatives that the County might consider for renewable energy use at the WKWWRF. The County Energy Commissioner provided considerable insight in the development of the alternatives analysis.

7. The *Air Quality, Odor, and Climate Change Impact Assessment* included in the Draft EIS quantifies the project greenhouse gas emissions and climate change impacts of the project. To the degree that MANA-supplied power displaces the MECO-supplied power currently used by WKWWRF, a reduction in GHG emissions will occur. This is because the produced biogas combusted in the CHP engine will create primarily "biogenic CO_2" as defined in 40 CFR §98.6, which is typically excluded from a stationary source's GHG emission inventory on the basis that it does not contribute to climate change over a period of time. However, even if these emissions are not excluded, they are well below the Significant Emissions and GHG Reduction Plan Thresholds established by the Hawaii Department of Health, Clean Air Branch, and found at found at §11-60.1-1 and §11-60.1-204 of the Hawaii Administrative Rules, respectively.

Again, thank you for providing comments to the EISPN and we will provide a link to the Draft EIS once it is published in the Environmental Notice.

Aloha,

Jeff Walsh

MANA
MAUI ALL NATURAL ALTERNATIVE

Meeting notes and email correspondence with Sierra Club Maui March 29th, 2017:

Attendance:

Stewart Stant, Director of Environmental Management, County of Maui
Michael Miyamoto, Deputy Director of Environmental Management, County of Maui
Rob Weltman, Executive Committee Chair, Sierra Club Maui
Adriane Raff Corwin; Group Coordinator; Sierra Club Maui
Dr. Andrew Benedek CEO Anaergia
Arun Sharma: Global Lead Build Own Operate Projects: Anaergia
Jeff Walsh: Project Development Manager MANA and Business Development Director Anaergia.
Milton Choy Principle; H20 Process Systems Hawaii; MANA Project Partner
Jarret Choy Principle; H20 Process Systems Hawaii; MANA Project Partner
Joining via Teleconference
Andrew Dale; Project Manager MANA; Project Engineering Lead Anaergia.

General Notes:

The meeting started with introductions and Dr. Benedek providing a global insight to Anaergia. Dr. Benedek explained we are working together with groups such as Sierra Club at various locations and for the most part should be team partners with the MANA Project. He mentioned that Anaergia is a technology leader in recovering value from waste for the municipal, industrial, and agriculture sectors. Dr. Benedek mentioned through its proven portfolio of proprietary technologies, Anaergia' s integrated solutions create value for its customers in the forms of clean water, renewable energy, and quality fertilizers while dramatically reducing the cost of waste management.

Arun Sharma indicated that we have over 1600 developed sites globally and will share project specifics with attributes similar to the MANA project on demand. He mentioned that we are excited to develop the project in conjunction with the County resulting in an environmentally and sustainability project that provides competitive firm renewable energy to the county and conversion of municipal processed sludge to a meaningful and sustainable Class A fertilizer.

Adriane and Rob discussed the project specifics and were concerned with both air and odor emissions. Andrew Dale answered these questions reflecting that all air emissions will comply with the State of Hawaii Clean Air Branch Air permitting and guidelines. He explained no additional odor from the existing facility will occur and specific odor control equipment will be an integral part of the design.

Jeff Walsh gave a site specific layout overview including major equipment plus feedstock supply information and digestate removal plans. A Power Point relating to the project and Anaergia was presented.

Follow up correspondence with Adriane Raff Corwin Summarized the following main questions that we asked at the meeting:

- Can Anaergia move the digester if the Kahului wastewater facility is relocated during the contract period? How would this be done? When will there be a complete proposal?
  - A complete draft proposal will be submitted during the 2nd quarter of 2016 to the OEQC at the State Department of Health
- What are the visual impacts of blocking ocean views by building in the coastal zone?
  - Visual impacts for the project are minimized and will be consistent with the existing structure heights and will not impede ocean views.
- Where the digestate would be disposed of? In what quantities? With what impacts?
  - Digestate from the anaerobic digestion of the energy crops is a closed loop system. All digestate from the production of biogas will be returned to the HC&S plantation for faming land applications. The amount of digestate would equal the biomass consumed which is estimated at 29,000 wet tons per year.
- What happens if the dried sludge gets wet or is too dry and crumbles?
  - The dried sludge or bio-solids are cooled and shape using post drying pellet shaping and cooling equipment resulting in mitigation of drying and crumbling of the dried sludge.
- Will there be noise or other industrial impacts that may affect wildlife at Kanaha Pond Bird Sanctuary?
  - Noise levels are controlled and contained within the structure of the housing equipment. No increase in noise levels are anticipated.
- How will Anaergia deal with potential odor issues from the process?
  - Odor control equipment will be included as part of the project design to mitigate potential odors from the sludge drying process.
- Will Anaergia be treating the water off of the digesters, or where will it be disposed of?
  - All digestate (liquid) will be land applied at the HC&S plantation.
- Can Anaergia move the digester if the Kahului wastewater facility is relocated during the contract period? How would this be done?
  - The design and location of the project affords dismantling and relocation of the project if the Kahului waste water facility is relocated. MANA is liable for the relocation cost.

Adriane shared that they had additional questions however were for A&B and the County of Maui government. She mentioned they look forward to seeing the DEA.

Appendix I:

MOA Lease County of Maui and MANA

MEMORANDUM OF AGREEMENT

BY THIS MEMORANDUM OF AGREEMENT ("Agreement") made this 26th day of January, 2017, COUNTY OF MAUI, a political subdivision of the State of Hawaii, whose place of business and mailing address is 200 South High Street, Wailuku, Maui, Hawaii 96793 (hereinafter called the "Grantor"), hereby grants to the MAUI ALL NATURAL ALTERNATIVE, a Delaware limited liability company, whose address is 5780 Fleet Street, Suite 310, Carlsbad, California, 92008, hereinafter called, and its agents, contractors and representatives, (hereinafter called the "Grantee"), a nonexclusive right-of-entry to the premises upon and subject to the following terms and conditions:

1. **Use**. Grantor hereby grants to Grantee a nonexclusive right-of-entry to enter upon the Premises (defined below) from time to time for the purpose of performing the work described in Section 2 of the Services Agreement for Electrical Generation and Sludge Drying, dated January 26, 2017 ("Work"), which is included herein by reference. The Parties acknowledge that Grantor has requested an amendment to State of Hawaii Executive Order 3006 (EO) from the State of Hawaii, Board of Land and Natural Resources, and that while Grantor is pursuing said amendment and Grantee is pursuing the completion and approval of the Environmental Assessment (EA) , Grantee is authorized to to perform Work on the Premises pursuant to the terms and conditions of this Agreement.

2. **Location**. The nonexclusive right-of-entry shall pertain to a portion of property located at 281 Amala Place, Kahului, Hawaii, also described as Tax Map Key No. (2) 3-8-001-188, upon which Lessor owns and operates the Wailuku-Kahului Wastewater Reclamation Facility (the "Premises").

3. **Terms and Duration**. The right-of-entry granted hereby shall commence effective as of the date of this Agreement and terminate on the earlier of any of the following a) date that the Work is completed, b) the events described in Section 2.1 of the Services Agreement occur or c) the EA is approved and accepted by the applicable governmental authority and the BLNR amends the EO. Upon any of the foregoing conditions occurring, Grantor and Grantee will execute the Site Lease (attached as Exhibit A) within ten (10) days of the date of approval. If the foregoing conditions do not occur within the time limit pursuant to Section 2.8 of the Services Agreement, this Agreement will terminate. The Services Agreement and the Site Lease terms and conditions will take precedence and supercede any conflicting terms and conditions set forth in this MOA.

Grantor will notify Grantee if Grantee is in violation of any terms and conditions of this Agreement. If Grantee fails to correct any default and comply with all terms and conditions of the Agreement within twenty (20) days of the notice, Grantor may terminate this Agreement. Upon the termination of this Agreement, Grantee shall put the Premises, at its own cost, to a condition satisfactory to Grantor.

4. **Approval of Improvements**. Grantee shall not place on the Premises any improvements except in accordance with plans and specifications which are first approved in writing by Grantor, which approval shall not be unreasonably withheld.

5. **Repair and Maintenance.** The Grantee will, at Grantee's own expense, *at all* times during the Term of this Agreement and in connection with the entries on the Premises hereunder, keep the Premises and the improvements to be constructed thereon in good order,

condition, maintenance, operability and repair and of a neat, clean and pleasing appearance satisfactory to Grantor.

6. **Due Care and Diligence/No Construction**. Grantee will use due care and diligence in entering upon the Premises. Grantee agrees that under no circumstances will it (a) grade, cut or otherwise alter the land except as is necessary in connection with the Work, or (b) make any improvements other than those contemplated by this Agreement.

7. **Indemnity**. Grantee shall defend, indemnify and hold harmless Grantor, from and against all claims, actions, suits, investigations, governmental proceedings damages and claims filed against Grantor, and for all costs and expenses (including attorneys' fees) incurred by Grantor, by third party brought or made by reason of or arising out of any mishap, fire, casualty occurring or made on the Premises by Grantee, or (d) the use or occupancy of the Premises by Grantee, or Grantee's invitees, permittees, employees, agents or contractors, or (e) Grantee's breach of any of the terms or conditions of this Agreement.

8. **Insurance**. The insurance provisions of the Services Agreement are hereby incorporated by reference.

9. **Condition of Premises/Assumption of Risk**. Grantee hereby agrees and acknowledges that Grantor has not made and will not make, any representation or warranty, implied or otherwise, with respect to the condition of the Premises, including any dangerous or defective conditions existing upon the Premises, whether or not such conditions are known to Grantor or reasonably discoverable by Grantee.

10. **Compliance with Laws and Regulations**. Grantee shall, at all times during the term hereof, comply with all applicable laws, rules and regulations, whether state, county or federal, including but not limited to, the laws applicable to the use of the Premises.

11. **Permits**. Grantee, at no cost or expense to Grantor, shall be responsible for obtaining any and all governmental permits and approvals which may be necessary for it to conduct any work or activities under this Agreement. Grantor agrees to reasonably assist Provider in obtaining such necessary permits, licenses and approvals.

12. **Liens and Claims**. Grantee shall not commit or suffer any act or neglect whereby the real property on which the Facility Site is located shall at any time during the term become subject to any attachment, lien, charge or encumbrance whatsoever and shall indemnify, defend and hold harmless Grantor from and against all liens, charges and encumbrances resulting therefrom, including reasonable attorneys' fees, it being hereby expressly agreed that Grantee shall have no authority, express or implied, to create any lien, charge or encumbrance upon the Premises.

13. **Nonexclusive Rights**. The rights granted to Grantee hereunder are nonexclusive and notwithstanding anything to the contrary contained herein, Grantor shall have the right to grant similar use of the Premises to other persons or corporations.

14. **Restoration of Surface**. Upon the completion of the Work and termination of this Agreement, Grantee will fill excavated areas and place the Premises in a safe and stable

condition, reasonably satisfactory to Grantor and remove any and all debris and litter that may result from such entry.

15. **Litigation**. In the event that Grantor is without any fault on its party made party to any litigation (other than condemnation proceedings) commenced by or against Grantee, and arising out of the Work then Grantee shall will pay all costs, expenses, damages and reasonable attorneys' fees incurred by or imposed on Grantor by or in connection with such litigation, investigation or governmental proceeding. Grantee will pay all costs and reasonable attorneys' fees which may be incurred or paid by Grantor in enforcing any provision of this Agreement which may be breached by Grantee.

16. **Assignment**. Grantee may not assign any of its rights or obligations hereunder without the prior written consent of Grantor. Grantor understands Grantee may subcontract some of its Work to contractors, who will have the same rights and permissions of access as Grantee set forth in this Agreement.

17. **Hazardous Materials**. The provisions relating to Hazardous Materials as set forth in the Services Agreement are incorporated herein. All of the agreements and obligations of the Grantee under this Section 18 shall survive, and shall continue to be binding upon the Grantee, notwithstanding the termination, expiration or surrender of this Agreement.

18. **Notices**. All notices, requests or other communications required or permitted to be given or made under this Agreement by either party hereto shall be in writing or email and shall be deemed to have been duly given or served if delivered personally to or sent by United States registered or certified mail, postage prepaid, return receipt requested, addressed to the party intended to receive such notice, at the addresses set forth above.

In the case of email the receiving party will acknowledge receipt of email within 1 business day.

In the case of a mailed notice, the registration or certification slip, and not the return slip, shall be conclusive as evidence of the mailing date of any such notice. All mailed notices are deemed delivered 72 hours after deposit in a regularly maintained United States post office mailbox or upon personal delivery.

19. **Successor and Assigns**. The rights and obligations hereunder shall bind and inure to the benefit of Grantor and its successors and assigns and Grantee and its successors and permitted assigns.

20. **Counterparts**. This Agreement may be executed in one or more counterparts, and all of the counterparts shall constitute but one and the same agreement, notwithstanding that all parties hereto are not signatory to the same or original counterpart.

[*signatures on the following page*]

IN WITNESS WHEREOF, Grantor and Grantee have caused this Agreement to be executed as of the day and year first above written.

COUNTY OF MAUI

By _____
~~ALAN M. ARAKAWA~~
~~Its Mayor~~
KEITH A. REGAN
ACTING MAYOR, COUNTY OF MAUI

MAUI ALL NATURAL ALTERNATIVE, LLC

By _____
(Signature)
ARUN SHARMA
(Print Name)
PRESIDENT
(Title)

APPROVAL RECOMMENDED:

STEWART STANT, Director
Department of Environmental
Management, County of Maui

APPROVED AS TO FORM
AND LEGALITY:

Deputy Corporation Counsel
County of Maui

ACKNOWLEDGEMENT

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of California)

County of San Diego)

On JAN. 18 2017 before me, RANDOLPH EDELMAN, NOTARY PUBLIC personally
(insert name and title of the officer)

appeared ARUN SHARMA

who proved to me on the basis of satisfactory evidence to be the person(~~s~~) whose name(~~s~~) is/are subscribed to the within instrument and acknowledged to me that he/~~she/they~~ executed the same in his/her/their authorized capacity(~~ies~~), and that by his/her/their signature(~~s~~) on the instrument the person(~~s~~), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Randolph Edelman
Notary Public Signature

RANDOLPH EDELMAN
Commission # 2040280
Notary Public - California
Los Angeles County
My Comm. Expires Sep 30, 2017

DOCUMENT TITLE: MEMORANDUM OF AGREEMENT

STATE OF HAWAII)
) SS:
COUNTY OF MAUI)

On this 26th day of January, 2017, before me appeared Keith A. Regan ~~ALAN M. ARAKAWA~~, to me personally known, who, being by me duly sworn or affirmed, did say that he is the Mayor of the COUNTY OF MAUI, a political subdivision of the State of Hawaii; that the seal affixed to the foregoing instrument is the lawful seal of said County of Maui; that said instrument was signed and sealed on behalf of said County of Maui pursuant to Section 7-5.11 and Section 9-18 of the Charter of the County of Maui; and the said ALAN M. ARAKAWA acknowledged said instrument to be the free act and deed of the said County of Maui.

IN WITNESS WHEREOF, I have hereunder set my hand and official seal.

KARLEEN N. HULTQUIST NOTARY PUBLIC No. 08-23 STATE OF HAWAII

Karleen N. Hultquist
Print Name: Karleen N. Hultquist
Notary Public, State of Hawaii

My Commission Expires: February 3, 2020

NOTARY CERTIFICATE (Hawaii Administrative Rules §5-11-8)

Document Identification or Description: Memorandum of Understanding

Doc. Date: not dated ☑ Undated at time of notarization
No. of Pages: 6 Jurisdiction: 2nd Circuit
(in which notarial act is performed)

Karleen N. Hultquist February 3, 2020
Signature of Notary Date of Certificate

Karleen N. Hultquist
Printed Name of Notary

(Official Stamp or Seal)

KARLEEN N. HULTQUIST NOTARY PUBLIC No. 08-23 STATE OF HAWAII

Appendix J:

Responses to Comments Received on the Draft EIS

Appendix J: Responses to Comments Received on the Draft EIS

J.1 COMMENTS AND RESPONSES TO COMMENTS

This Appendix includes reproductions of all written comments MANA and the County DEM received on the Draft EIS, in accordance with Hawaii Revised Statutes (HRS) Chapter 343, and Hawaii Administrative Rules (HAR), Title 11, Chapter 200. This Appendix also contains responses to "each substantive question, comment, or recommendation received in the review and consultation processes." HAR § 11-200-18(4). Where appropriate, the responses to the comments indicate sections of the FEIS that discuss the relevant environmental impacts or mitigation measures, and indicate sections of the FEIS that were revised in response to the issue raised.

J.2 DISTRIBUTION OF THE DEIS

Table J.2 summarizes the circulation of the DEIS, EISPN, and other consultation letters sent during project planning. The list of persons, organizations, and public agencies consulted was reviewed with the State Department of Health (DOH) OEQC and approved for distribution prior to the submittal of the DEIS. Table 2 summarizes the notices sent and comments received during initial consultation, and publication of the two EISPNs and the DEIS. In Table 2, an x indicates parties that were notified of the publication but did not respond or comment; an asterisk indicates parties who responded prior to the DEIS; and two asterisks indicates a party that commented on the Draft EIS.

Table J.2 Distribution List for the Renewable Energy Conversion and Sludge Processing for the Wailuku – Kahului Wastewater Reclamation Facility Draft Environmental Impact Statement (DEIS)

No.	Entity	2/28/17 EA Consultation Letter Sent	6/23/17 EISPN Letter Sent	9/12/17 EISPN Letter Sent	12/21/17 Notice of Publication of DEIS
FEDERAL					
1	Department of Agriculture			x	x
2	Department of Agriculture, National Resources Conservation Service	x	x	x	x
3	Department of Army, Army Corps of Engineers		x	x	x
4	Department of Army, Regulatory Branch Ft. Shafter	x		x	x
5	Department of Commerce,			x	x

	National Marine Fisheries Service				
6	Department of Homeland Security, Coast Guard			x	x
7	Department of the Interior, Geological Survey, Pacific Islands Water Science Center			x	x
8	Department of Interior, Fish and Wildlife Service	*	x	x	x
9	Department of Interior, National Parks Service			x	x
10	Department of Navy, Pacific Division Naval Facilities			x	x
11	Department of Transportation, Federal Aviation Administration	x	x	x	x
12	Department of Transportation, Federal Highways Administration			x	x
13	Department of Transportation, Federal Transit Administration			x	x
14	Environmental Protection Agency, Region IX			x	x
STATE OF HAWAII					
15	Department of Accounting and General Services	x	x	x	**
16	Department of Agriculture	x	x	x	x
17	Department of Business, Economic Development and Tourism	x	x	x	x
18	Department of Business, Economic Development and Tourism, Research Division Library			x	x
19	Department of Business, Economic Development and Tourism, Strategic Industries			x	x

	Division				
20	Department of Business, Economic Development and Tourism, Office of Planning	*	x	x	x
21	Department of Defense			x	x
22	Department of Education	x	x	x	x
23	Department of Education, Hawaii State Library, Hawaii Documents Center			x	x
24	Department of Education, Hawaii State Library, Kahului Regional Library			x	x
25	Department of Hawaiian Home Lands	x	*	x	x
26	Department of Health	*	*	*	**
28	Department of Land and Natural Resources	*	*	*	**
29	Department of Land and Natural Resources, State Historic Preservation Division	*	x	x	x
30	Department of Transportation	*		x	x
31	Legislative Reference Bureau Library			x	x
32	Office of Hawaiian Affairs, Honolulu	x	x	x	x
33	State Land Use Commission	x	x	x	x
34	University of Hawaii, Water Resources Research Center			x	x
35	University of Hawaii, Environmental Center			x	x
36	University of Hawaii, Marine Program Honolulu				x
37	University of Hawaii, Thomas H Hamilton Library Honolulu				x
38	University of Hawaii, Edwin H Mookini Library Hilo Hawaii				x

39	University of Hawaii Kauai Community College Library				x
40	University of Hawaii, Maui College Library			x	x
COUNTY OF MAUI					
41	Department of Environmental Management	*	x	x	x
42	Department of Fire and Public Safety	x	x	x	x
43	Department of Housing and Human Concerns			*	x
44	Department of Parks and Recreation			*	x
45	Department of Planning	*	*	*	x
46	Department of Public Works	*	x	*	x
47	Department of Water Supply	*	x	x	x
48	Maui Civil Defense Agency		x	x	x
49	Department of Transportation				**
ELECTED OFFICIALS					
50	Senator Mazie Hirono			x	x
51	Representative Tulsi Gabbard			x	x
52	Senator Rosalyn Baker	x	x	x	x
53	Senator Kalani English	x	x	x	x
54	Senator Gilbert Keith-Agaran	x	x	x	x
55	Representative Joseph Souki	x	x	x	x
56	Representative Justin Woodson	*	x	x	x
57	Council Member Elle Cochran	x	x	x	x
58	Council Member Don Guzman			x	**
OTHER CONSULTED PARTIES					
59	Hawaiian Telecom	x	x	x	x
60	Maui Electric Company, Ltd.			x	x

61	Maui News			x	x
62	Honolulu Star Advertiser				x
63	Hawaii Tribute Herald				x
64	West Hawaii Today				x
65	The Garden Island				x
66	Molokai Dispatch				x
67	Honolulu Civil Beat				x
68	Maui Tomorrow Foundation Inc.	x	*	x	**
69	Shaka Movement	x	x	x	x
70	Sierra Club of Hawaii	x	*	*	**
71	Surfrider Foundation Maui Chapter	x	x	x	**

J.3 COMMENTS RECEIVED AND RESPONSES

During the DEIS public comment period from December 22, 2017 through February 8th, 2018, MANA and the County received comments from seventeen people and entities, as listed below and depicted in Table J.3.

1. **Email Correspondence A** – Email from Surfrider Foundation, Maui, dated December 29th, 2017.
2. **Letter B** – Letter from Clifton M. Hasegawa, President and CEO, Clifton M. Hasegawa & Associates, LLC, dated December 30th, 2017.
3. **Email Correspondence C** – Email from Prof. Dick Mayer, dated December 30th, 2017.
4. **Letter D** – Letter from County of Maui, Department of Transportation, dated January 4th, 2018.
5. **Letter E** – Letter from State of Hawaii, Department of Accounting and General Services, dated January 16th, 2018.
6. **Letter F** – Letter from State of Hawaii, Department of Health, Environmental Planning Office, dated January 19th, 2018.
7. **Meeting Notes G** – Summary of Meeting Notes from Draft EIS Informational Public Meeting, Kahului Elementary School, Kahului, Maui, dated January 24th, 2018.
8. **Email Correspondence H** – Email from Charlotte O'Brien, Founder & CEO, Carbon Drawdown Solutions, dated February 5th, 2018.
9. **Email Correspondence I** – Email from Rubens Fonseca, Plant Manager, Maui EKO Systems, dated February 5th, 2018.
10. **Letter J** – Letter from State of Hawaii, Department of Land and Natural Resources, dated February 5th, 2018.

11. **Information Article K** – Article from Environment Hawaii, Monthly publication, February 2018, dated February 5th, 2018.
12. **Letter L** – Letter from Robert A. King, President, Pacific Biodiesel Technologies, LLC, dated February 6th, 2018.
13. **Letter M** – Letter from Albert Perez Executive Director, Maui Tomorrow Foundation, Inc., dated February 6th, 2018.
14. **Letter N** – Letter from Charlotte O'Brien, Founder & CEO, Carbon Drawdown Solutions, dated February 6th, 2018.
15. **Letter O** – Letter from Adriane Raff Corwin, Coordinator, Sierra Club Maui Group, dated February 7th, 2018.
16. **Letter P** – Letter from David M. Robichaux, Principle, North Shore Consultants, dated February 8th, 2018.
17. **Letter Q** – Letter from State of Hawaii, Wastewater Branch, Department of Health, dated February 9th, 2018.

Email Correspondence A – Email from Surfrider Foundation, Maui, dated December 29th, 2017.

From: Surfrider Maui Chair <chair@maui.surfrider.org>
Sent: Friday, December 29, 2017 1:51 PM
To: Walsh Jeff
Cc: Michael Miyamoto
Subject: Re: Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project

Thank you kindly. This is well-received, and w appreciate being kept in the loop on this project.

On Sat, Dec 23, 2017 at 12:21 AM, Walsh Jeff <Jeff.Walsh@anaergia.com> wrote:

> Good Evening
>
> Please find attached a notice of the availability for a Draft EIS of the MANA Project located on Maui, Hawaii that will be published on December 23rd, 2017 in The Environmental Notice.
>
> The Draft EIS document may be found at the DOH State Office of Environmental Quality (OEQC) online library at the following URL:
>
> http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-MA-DEIS-Renewable-Energy-Conversion-and-Sludge-Processing-at-the-Wailuku-Kahului-Wastewater-Reclamation-Facility.pdf
>
> **Best regards,**
>
> **Jeff Walsh**
> *Director of Business Development: Hawaii & Pacific*
> E: Jeff.Walsh@anaergia.com
> 92-1996 Kulihi St. Kapolei, Hawaii, 96707
> T: 760-436-8870 ext. 108 | M: 808-729-1495 | F: 760-448-6847
>
> <IMAGE.png>

1

--
Andrew O'Riordan
Chapter Chair
Surfrider Foundation, Maui
chair@maui.surfrider.org
1-808-895-6339
Check out our website
Or join us on Facebook
Join the Protect Peahi Coalition
Help keep the coastline clean, healthy and accessible...Join Surfrider Foundation today! Click here!

Email Correspondence A – Response

Email Correspondence A does not raise any issue to respond to, but is included for completeness.

Letter B – Letter from Clifton M. Hasegawa, President and CEO, Clifton M. Hasegawa & Associates, LLC, dated December 30th, 2017.

Clifton M. Hasegawa
President and CEO
Clifton M. Hasegawa & Associates, LLC
1322 Lower Main Street A5
Wailuku, Hawaii 96793
Mobile: (808) 419-5481
Email: clifhasegawa@gmail.com
LinkedIn: https://www.linkedin.com/in/cliftonhasegawa

VIA EMAIL <stewart.stant@co.maui.hi.us> <jeff.walsh@anaergia.com>

December 30, 2017

Mr. Stewart Stant, Director
Maui County Department of Environmental Management
2050 Main St. Suite 2B
Wailuku, Hawaii 96793

Mr. Jeff Walsh
Maui All Natural Alternative
5780 Fleet St. Suite 310
Carlsbad, California 92008

Re: Comments. Draft Environmental Impact Statement. Renewable Energy Conversion and Sludge Processing for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF) December 11, 2017, accessed December 30, 2017

Dear Mr. Stant and Mr. Walsh,

The EIS submitted by Maui All Natural Alternative is fiscally, financially and legally insufficient as it does not address wastewater energy management and the cost benefits of the project, specifically and in particular, savings that will be achieved by the Renewable Energy Conversion and Sludge Processing Plant for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF). B-1

Maui County has adopted and implemented Best Management Practices for Water Treatment and Wastewater Reclamation Facilities after completion of the Environmental Impact Statement (EIS) for and during construction. Please refer to:

1. <https://www.mauicounty.gov/777/Best-Management-Practices---Home> [Find Your Water Sources] and

2. <http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Maui/2010s/2016-01-23-MA-5E-FEA-Wailuku-Well-No.2.pdf>

3. <http://oeqc.doh.hawaii.gov/Shared%20Documents/EA_and_EIS_Online_Library/Maui/2010s/2016-09-23-MA-5B-FEA-South-Maui-Recycled-Water-System-Expansion.pdf>

B-2

The foregoing Maui County Department of Water Supply and Department of Environment Management heretofore documentation passed muster. The Public Trust demands accountability, responsibility and compliance with all legal, environmental, budgetary and financial requirements. Deficiencies overlooked previously will not be condoned and given a rubber stamp of approval.

Your attention is directed to the Energy Evaluation for the Hawaii County Department of Water Supply. May 2015 Rev 1: July 2015, accessed December 30, 2017 <http://www.hawaiidws.org/5%20events%20news%20notices/5c%20news/Hawaii%20Final%20Report%20final%208-14-2015rev.pdf>

> The Department of Water Supply (DWS) provides domestic water service through its 25 water systems throughout the island. The individual water systems are not interconnected except in the districts of South Hilo and Kona. The Department strives to provide dependable, high quality, potable water at a reasonable cost and has concentrated its efforts towards providing uninterrupted water service.
>
> An effective energy management program provides a systematic approach to reducing facility energy use and costs. An energy management program is more than just developing energy improvement projects. A successful program is structured to provide an on-going process that can be used to continually evaluate new projects, track savings and encourage efforts within the organization to improve efficiency.

B-3

As cost savings projects were developed, each measure was prioritized based on ease of implementation, cost effectiveness and ability for each project to support subsequent measures. The projects have been categorized as energy conservation measures (ECMs), for projects that require a capital investment, operational measures (OMs) for projects that have fast paybacks (under one year), and energy supply measures (ESMs) for improvements that may reduce energy costs without reducing energy consumption (i.e. demand savings, rate schedule changes). We have also included energy management practices (EMPs) for recommendations that will help formalize the DWS energy management program and future energy management measures (FEMs) that can be considered as part of future system upgrades.

In addition to the energy cost savings, reducing facility energy use will also provide environmental benefits that include reducing greenhouse gas emissions (GHG) that include CO2, N2O and CH4. The information in this evaluation can be used by the DWS to develop a GHG inventory plan in accordance with the EPA's Climate Leadership Program.

The Hawaii County Department of Water Supply Energy Evaluation was supported by Hawaii Energy.

B-3

HAWAII ENERGY - WATER & WASTEWATER ENERGY MANAGEMENT
Best Practices Handbook Hawaii Edition
April 2014, accessed December 30, 2017
https://hawaiienergy.com/images/business/waterAndWastewaterSolutions_handbook.pdf

Governor Neil Abercrombie

In recent years, it has become clear to all who live in Hawaii that there is a direct and important connection between water and energy usage. Both are inseparably linked in ways that affect our environment, impact our pocketbooks, and influence the economic sustainability of our islands. This is mainly due to the significant energy that is required to operate water and wastewater facilities.

B-4

The resulting costs from this water-energy nexus are aggravated by the continuing increase in electricity rates as oil prices continue to rise. As a result, water and wastewater facilities face very difficult challenges in controlling operating costs and, ultimately, costs to their customers.

In an effort to address these challenges, this Administration, through the Hawaii Public Utilities Commission (PUC), has directed Hawaii Energy, the state's energy conservation and efficiency program, to develop energy-saving strategies and programs specifically focused on providing efficiency incentives, training and education across the full spectrum of water/wastewater operations and customer usage. While water quality and public safety will always be the first priority of water and wastewater operations, improved energy efficiency and conservation can ensure that we continue to provide these vital services at an affordable cost to all Hawaii citizens while also achieving the state's clean energy goals.

B-4A

The majority of electricity use in the wastewater sector occurs at the wastewater treatment facilities (WWTFs). Nevertheless, electricity is consumed at pumping stations within the collection system as well. In WWTFs, over two-thirds of overall energy consumption is in secondary treatment processes. These processes usually represent the greatest opportunity for energy savings. Other components that offer opportunities for energy efficiency improvements are the solids handling processes and disinfection systems (UV systems). One unique aspect of the wastewater sector is the potential for on-site electrical and thermal energy generation using anaerobic digester gas, a byproduct of the anaerobic sludge digestion process, as a renewable energy resource.

B-4B

Every water/wastewater system should develop a strategy to implement energy-efficient (EE) and/or renewable energy (RE) projects. EE and RE project implementations are critical components of sustainability ("Green") goals. A first step in this strategy is to develop a cost analysis approach that incorporates the cost of energy consumption for the projected life of the equipment being purchased (life-cycle costing). This can show how the project will pay for itself and meet an acceptable payback.

B-4C

The analysis may also describe features that can provide additional savings: reduced maintenance, shorter downtime, greater reliability of operation, no chemical conditioning costs, etc. This analysis should compare the benefits and costs of the proposed improvements versus the costs of the current operation. In addition to energy savings, the payback assessment should include all ancillary attributes. If the payback is acceptable, the water/wastewater treatment facility (WWTF) should move the capitalization process forward.

All projects should be analyzed to identify what savings they achieve for the water/wastewater system when implemented. A truly effective strategic plan will include a list of proposed improvements along with their priority, a schedule for completion and their estimated costs and savings.

Other Benefits. Utilizes more-informed, analytical business practices in decision making that ultimately benefits ratepayers.

Stage of Acceptance. Identifying and implementing energy-efficient and renewable energy projects is gaining industry acceptance.

[Emphasis Supplied]

B-4D

We hereby request that the Draft EIS be revisited, the Public Comment Period be extended to permit further investigation, review, analysis and completion of a complete energy evaluation by Maui All Natural Alternative to be submitted for re-consideration by the EIS Approving Authority prior to and before publication of the Final EIS.

B-5

Thank you very much

Respectfully.

Clifton M. Hasegawa

Letter B – Response

Response to B-1

As described in Chapter 1 of the FEIS, "Project Needs and Basis," the proposed project is based on the County's energy and economic goals for the project, as reflected in the County's Request for Proposals (RFP). Chapter 2 of the FEIS analyzes and describes, among other things, the proposed project's potential wastewater, energy management, and economic impacts, along with mitigation measures. In addition, Chapter 6, "Alternatives to the Proposed Action," assesses alternatives to the project using an analysis of the County's goals for the project, by comparing the energy, cost, environmental, and other impacts for each alternative to the proposed project. This EIS has therefore been prepared in accordance with HRS, Chapter 343 and HAR, Title 11, Chapter 200.

Response to B-2

The references to best management practices ("BMPs") provided in the comment refer to residential BMPs, and other project-specific BMPs referenced in environmental impact statements for other projects (a water well, and the South Maui recycled water system expansion), and therefore are not directly applicable to the proposed project. The proposed project incorporates applicable best management practices, as described in various sections of Chapter 2 and Chapter 5 of the FEIS. MANA has reviewed the additional references provided in this comment, which do not suggest the need for additional best management practices beyond those already incorporated. As the project progresses, MANA will comply with all BMPs required due to development or operational permitting.

Response to B-3

MANA has reviewed the Energy Evaluation for the "Hawaii County Department of Water Supply." That study was conducted not to satisfy EIS requirements, but to "detail" "energy saving recommendations" that Hawaii County's consultants "identified" (see page 4 of that Report), prior to formulating projects or conducting an EIS on any particular project. This proposed project (and its RFP) arose from similar analyses performed by Maui County to identify renewable energy opportunities based upon the County DEM's experience in renewables at its other wastewater reclamation facilities and analysis of the particular needs of the WKWWRF. Energy management analysis and potential cost savings are discussed in Chapter 6 of the FEIS, "Alternatives to the Proposed Project." An analysis of greenhouse gas (GHG) impacts is also discussed in Chapter 6, based on a detailed analysis included in Appendix F, "Air Quality, Odor and Climate Change Impact Study."

Response to B-4

Like the Hawaii County "Energy Evaluation" report discussed in the previous comment, the Hawaii Energy-Water & Wastewater Energy Management Best Practices Handbook, Hawaii Edition was not conducted to satisfy EIS requirements, but describes a process for evaluating potential renewable energy and energy conservation projects at wastewater treatment facilities, such as the proposed project. The following responses address the excerpts provided in this comment:

Response to B-4A:

One of the County's strategic planning goals in issuing the RFP was to "Stabilize electrical energy cost thought utility grid dependence as well as stabilize sludge handling and disposal costs." *See* Goal 3; FEIS, Section 6.1. Chapter 6 also illustrates the uncertainty of oil pricing and the correlation to electrical cost for utility supplied customers, and provides a thorough analysis of cost certainty for each of the alternatives to the project including the proposed solution, ranking the alternatives on this and other criteria.

Response to B-4B:

As described in Section 1.3 of the FEIS, the proposed project has been developed in order to meet Maui County's need for a private party to design, construct, maintain, and operate an electric power generator system with wastewater sludge dewatering and drying. As described in Section 1.4 of the FEIS, the proposed project meets the County's needs with the use of on-site electrical and thermal energy system powered by renewable anaerobic digester gas, generated from energy purpose crops that have a high energy potential. Because the County of Maui does not have primary clarifiers at its treatment plants, it produces waste activated sludge (WAS). WAS is low-energy-content material, with approximately 2/3 the biogas potential as energy crops. Use of this lower energy material is disfavored over energy purpose crops, and therefore is not part of the proposed project.

Response to B-4C:

The proposed project **is** an energy-efficient renewable-energy project, using renewable fuels and cogeneration. Life-cycle costing evaluations were conducted by the County Energy Commissioner as part of the development of the RFP and contract negotiations process. However, the purpose of an EIS is to "ensure that environmental concerns are given appropriate consideration," not to require detailed economic analysis. HRS § 343-1. Accordingly, the regulations require consideration of "alternatives which could attain the objectives of the action, **regardless of cost**." HAR § 11-200-17(f) (emphasis added). Thus, as confirmed by the Hawaii Supreme Court, Hawaii's EIS statute does "not . . . mandate a cost-benefit analysis or quantification in monetary terms." *Life of the Land v. Ariyoshi*, 59 Haw. 156, 163 (1978). Therefore, this EIS focuses on evaluation of environmental, cultural, and other related impacts, as well as potential alternatives and mitigation measures; life-cycle cost concerns are analyzed in another, more appropriate forum.

Response to B-4D:

As explained in FEIS Chapter 1, the County is not anticipated to incur any capitalization costs because the project will be privately financed. Please also see Response to B-4C.

Response to B-5

Please see Response to B-1. The County analyzed the energy and cost needs and requirements in development of the RFP, and the FEIS contains additional energy and cost

information in sufficient detail to analyze relevant impacts. The EIS has therefore been prepared in accordance with HRS, Chapter 343 and HAR, Title 11, Chapter 200, and no new considerations have been identified that warrant either additional energy evaluations beyond those contained in the FEIS or extending the EIS public comment period.

Email Correspondence C – Email from Prof. Dick Mayer, dated December 30th, 2017.

From: Dick Mayer <dickmayer@earthlink.net>
Sent: Saturday, December 30, 2017 3:26 PM
To: stewart.stant@co.maui.hi.us
Cc: Walsh Jeff; 'Frederick Redell'; rob.parsons@co.maui.hi.us
Subject: Draft EIS - Energy Conversion

Maui News article:
http://www.mauinews.com/news/local-news/2017/12/draft-eis-complete-for-proposed-energy-conversion-project/

Aloha Mr. Stant,

There are two obvious much better sites (away from the tsunami zone). Both already have the necessary land entitlements and are closer to where the crops will be grown. The electricity could easily be wheeled to the Kahului waste water plant on MECO's grid. C-1

1. **The very large amount of industrially zoned land (owned by A&B) around the now dormant HC&S sugar mill.**
2. **The approximately 67 acre MECO industrial land (on Pulehu Road across from the Central Maui Dump). It was intended for exactly this kind of activity when 33 of the acres were designated and entitled for alternative energy sources in 2000.** C-2

I hope the Draft EIS has given ample consideration to these two alternative locations which have many beneficial aspects..

Prof. Dick Mayer
Cell 808-283-4376
dickmayer@earthlink.net

1

Email Correspondence C – Response

Response to C-1

Section 2.1.6 of the FEIS indicates that the site is mapped within the tsunami evacuation zone, but also confirms that the site already has mitigation measures in place, including fortifications capable of withstanding a tsunami with a 20.1-foot wave height. The tsunami fortifications were constructed at the site relatively recently, in accordance with the FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED SHORELINE PROTECTION EXTENSION AT WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY, dated April 2013. Because the MANA project is within the fortified revetment wall (See Drawing G-5 Appendix A) and the sludge processing and power generation equipment is above the 20.1-foot elevation (see Drawing G2 Appendix A), no additional tsunami-related mitigation features need be constructed.

In response to this and related comments, Section 2.1.6 of the FEIS has been revised to confirm that mitigation measures will include designing the Project in accordance with applicable building code standards, the rules and regulations of the National Flood Insurance Program as presented in Title 44 of the Code of Federal Regulations, and pursuant to an anticipated Flood Development Permit, which would require approval by the County of Maui Department of Planning (this Permit cannot be obtained prior to acceptance of this FEIS). As part of the Flood Development Permit application, MANA will prepare a written Tsunami action plan that would provide for training all staff in emergency responses measures, which may include proper site shut-down, moving and securing critical equipment, coordination with the wastewater facility staff and its tsunami emergency planning, etc. The action plan will be prepared in accordance with the Maui Civil Defense Agency's Hazard Mitigation Plan, which is currently being updated.

Response to C-2

With respect to the alternative locations identified in this comment, Hawaii law does not permit electrical power wheeling (i.e., the distribution of electricity owned by an independent power supplier and sold to a consumer over transmission and distribution lines of a public utility that is not itself producing the electricity). *See* HRS § 269-1. Therefore, the project cannot utilize MECO's transmission lines, and must be located on the WKWWRF site, as indicated in the RFP. Moreover, one of the primary purposes of the project is to utilize the waste heat from electricity generation to dry the county's biosolids, achieving significant electrical and sludge handling cost and energy savings, while reducing pollution. These fundamental project purposes could not be achieved with an off-site facility. Chapter 6 of the FEIS has been revised to explain that these are the reasons that alternative off-site locations are not feasible.

Letter D – Letter from County of Maui, Department of Transportation, dated January 4th, 2018.

ALAN M. ARAKAWA
Mayor

DON MEDEIROS
Director
MARC I. TAKAMORI
Deputy Director
(808) 270-7511

DEPARTMENT OF TRANSPORTATION
COUNTY OF MAUI
2145 Kaohu Street, Suite 102
Wailuku, Hawaii, USA 96793

January 4, 2018

Mr. Jeff Walsh, Project Business Development Manager
Maui All Natural Alternative, LLC (MANA)
5780 Fleet Street, Suite 310
Carlsbad, CA 92008

Subject: Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility

Dear Mr. Walsh,

Thank you for the opportunity to comment on this project. We have no comments to make regarding this project at this time.

Please feel free to contact me if you have any questions.

Sincerely,

Don Medeiros
Director

S:\Letters\DOT Response - Renewable Energy Conversion and Sludge Processing for WKWWRF.doc

Letter D – Response

Letter D does not raise any issue to respond to, but is included for completeness.

Letter E – Letter from State of Hawaii, Department of Accounting and General Services, dated January 16th, 2018.

DAVID Y. IGE
GOVERNOR

RODERICK K. BECKER
Comptroller

AUDREY HIDANO
Deputy Comptroller

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810-0119

(P)1008.8

JAN 16 2018

Mr. Jeff Walsh
Maui All Natural Alternative, LLC
5780 Fleet Street, Suite 310
Carlsbad, CA 92008

Dear Mr. Walsh:

Subject: Draft Environmental Impact Statement for
Renewable Energy Conversion and Sludge Processing for the
Wailuku-Kahului Wastewater Reclamation Facility Project
Wailuku, Maui, Hawaii
TMK: (2) 3-8-001:188

Thank you for the opportunity to comment on the subject project. The proposed project does not impact any of the Department of Accounting and General Services' projects or existing facilities and we have no comments to offer at this time.

If you have any questions, you may call Ms. Dora Choy of the Planning Branch at 586-0488.

Sincerely,

KEITH S. KOGACHI
Acting Public Works Administrator

DC:mo
c: Mr. Stewart Stant, Director, County of Maui, Dept. of Env. Mgt.
Mr. Michael Miyamoto, Deputy Director, County of Maui, Dept. of Env. Mgt.
Mr. Wade Shimabukuro, DAGS MDO

Letter E – Response

Letter E does not raise any issue to respond to, but is included for completeness.

Letter F – Letter from State of Hawaii, Department of Health, Environmental Planning Office, dated January 19th, 2018.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:
EPO 17-330

January 18, 2018

Mr. Stewart Stant, Director
County of Maui
Department of Environmental Management
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793
Email: stewart.stant@co.maui.hi.us

Dear Mr. Stant:

SUBJECT: Draft Environmental Impact Statement (DEIS) for Renewable Energy Conversion and Sludge Processing at the Wailuku-Kahului Wastewater Reclamation Facility
TMK: (2) 3-8-001:188 (portion)

The Department of Health (DOH), Environmental Planning Office (EPO), acknowledges receipt of your DEIS to our office via the OEQC link:
http://oeqc2.doh.hawaii.gov/EA_EIS_Library/2017-12-23-MA-DEIS-Renewable-Energy-Conversion-and-Sludge-Processing-at-the-Wailuku-Kahului-Wastewater-Reclamation-Facility.pdf

We understand from the OEQC publication form project summary that *"To assist the County of Maui in achieving its locally sourced renewable energy goals and to provide a long term sustainable solution for biosolids management, the County selected MANA via an RFP process to install an anaerobic digester and associated appurtenances at the WKWWRF. The product of the anaerobic digestion process is renewable methane in the form of biogas that is treated and used on-site to fuel a combined heat and power (CHP) engine for electrical power generation. Recovery heat from the CHP with additional biogas will provide the heat for the drying of all the municipally-generated wastewater biosolids produced on Maui. The Project is not designed to export electrical energy to the grid. The entire facility will be located on the west side of the existing aerobic blower building and well within the confines of the WKWWRF. All energy crops will be grown on former Hawaiian Commercial & Sugar plantation lands."*

Hawaii's environmental review laws require Environmental Assessments (EAs) and Environmental Impact Statements (EISs) to consider health in the discussion and the mitigation measures to reduce negative impacts. In its definition of 'impacts,' §11-200-2, Hawaii Administrative Rules (HAR) includes health effects, whether primary (direct), secondary (indirect), or cumulative. Further, §11-200-12(b)(5), HAR, lists public health as one of the criteria for determining whether an action may have a significant impact on the environment.

In the development and implementation of all projects, EPO strongly recommends regular review of State and Federal environmental health land use guidance. State standard comments to support sustainable healthy design are provided at: http://health.hawaii.gov/epo/landuse. Projects are required to adhere to all applicable standard comments. If you haven't already, EPO recommends that you review the new Health Communities Policy Guide: https://planning-org-uploaded-media.s3.amazonaws.com/document/Healthy-Communities-Policy-Guide.pdf, Plan4health website: http://plan4health.us If you haven't already, EPO recommends that you view the free, on-demand, six part Plan4Health webinar series available on the American Planning Association website at: https://www.planning.org/nationalcenters/health/planners4health

EPO also encourages you to examine and utilize the Hawaii Environmental Health Portal at: https://eha-cloud.doh.hawaii.gov. This site provides links to our e-Permitting Portal, Environmental Health Warehouse, Groundwater Contamination Viewer, Hawaii Emergency Response Exchange, Hawaii State and Local Emission Inventory System, Water Pollution Control Viewer, Water Quality Data, Warnings, Advisories and Postings.

We suggest you review the requirements of the Clean Water Branch (Hawaii Administrative Rules {HAR}, Chapter 11-54-1.1, -3, 4-8) and/or the National Pollutant Discharge Elimination System (NPDES) permit (HAR, Chapter 11-55) at: http://health.hawaii.gov/cwb. If you have any questions, please contact the Clean Water Branch (CWB), Engineering Section at (808) 586-4309 or cleanwaterbranch@doh.hawaii.gov. If your project involves waters of the U.S., it is highly recommended that you contact the Army Corps of Engineers, Regulatory Branch at: (808) 835-4303.

Injection wells used for the subsurface disposal of wastewater, sewage effluent, or surface runoff are subject to environmental regulation and permitting (HAR, Chapter 11-23, "Underground Injection Control {UIC}"). DOH approval must be obtained before any injection well construction commences. A UIC permit must be issued before any injection well operation occurs. For specific questions please email sdwb@doh.hawaii.gov or call (808) 586-4258.

Please note that all wastewater plans must conform to applicable provisions (HAR, Chapter 11-62, "Wastewater Systems"). We reserve the right to review the detailed wastewater plans for conformance to applicable rules. Should you have any questions, please review online guidance at: http://health.hawaii.gov/wastewater and contact the Planning and Design Section of the Wastewater Branch (WWB) at (808) 586-4294.

If temporary fugitive dust emissions could be emitted when the project site is prepared for construction and/or when construction activities occur, we recommend you review the need and/or requirements for a Clean Air Branch (CAB) permit (HAR, Chapter 11-60.1 "Air Pollution Control"). Effective air pollution control measures need to be provided to prevent or minimize any fugitive dust emissions caused by construction work from affecting the surrounding areas. This includes the off-site roadways used to enter/exit the project. The control measures could include, but are not limited to, the use of water wagons, sprinkler systems, and dust fences. For questions contact the Clean Air Branch via e-mail at: Cab.General@doh.hawaii.gov or call (808) 586-4200.

Any waste generated by the project (that is not a hazardous waste as defined in state hazardous waste laws and regulations), needs to be disposed of at a solid waste management facility that complies with the applicable provisions (HAR, Chapter 11-58.1 "Solid Waste Management Control"). The open burning of any of these wastes, on or off site, is strictly prohibited. You may wish you review the Minimizing Construction & Demolition Waste Management Guide at: http://health.hawaii.gov/shwb/files/2016/05/constdem16.pdf Additional information is accessible at: http://health.hawaii.gov/shwb. For specific questions call (808) 586-4226.

If noise created during the construction phase of the project may exceed the maximum allowable levels (HAR, Chapter 11-46, "Community Noise Control") then a noise permit may be required and needs to be obtained before the commencement of work. Relevant information is online at: http://health.hawaii.gov/irhb/noise EPO recommends you contact the Indoor and Radiological Health Branch (IRHB) at (808) 586-4700 with any specific questions.

If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with State Law (HRS, Chapter 128D, "Environmental Response Law", Chapter 451, "State Contingency Plan"). To identify HEER records related to the property, visit http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/public-records. For information on site assessment and cleanup programs review: http://eha-web.doh.hawaii.gov/eha-cma/Leaders/HEER/site-assessment-and-cleanup-programs. Any specific questions should be directed to the HEER office at (808) 586-4249.

You may also wish to review the draft Office of Environmental Quality Control (OEQC) viewer at: http://eha-web.doh.hawaii.gov/oeqc-viewer. This viewer geographically shows where some previous Hawaii Environmental Policy Act (HEPA) {Hawaii Revised Statutes, Chapter 343} documents have been prepared.

To better protect public health and the environment, the U.S. Environmental Protection Agency (EPA) has developed an environmental justice (EJ) mapping and screening tool called EJSCREEN. It is based on nationally consistent data and combines environmental and demographic indicators in maps and reports. EPO encourages you to explore, launch and utilize this powerful tool in planning your project. The EPA EJSCREEN tool is available at: http://www.epa.gov/ejscreen.

We hope this information is helpful. If you have any questions please contact us at DOH.epo@doh.hawaii.gov or call us at (808) 586-4337. Thank you for the opportunity to comment.

Mahalo nui loa,

Laura Leialoha Phillips McIntyre, AICP
Environmental Planning Office

LM:nn

Attachment 1: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)
Attachment 2: U.S. EPA EJSCREEN Report for Project Area

c: Jeff Walsh, Maui All Natural Alternative, LLC (via email: jeff.walsh@anaergia.com)
DDEH, DHO M, EMD, CWB, WWB, SHWB, CAB, IRHB, HEER {via email only}

Attachment 1: Office of Environmental Quality Control (OEQC) viewer (of some past EA's, EIS's in area)

Attachment 2: U.S. EPA EJSCREEN Report for Project Area

EPA United States Environmental Protection Agency

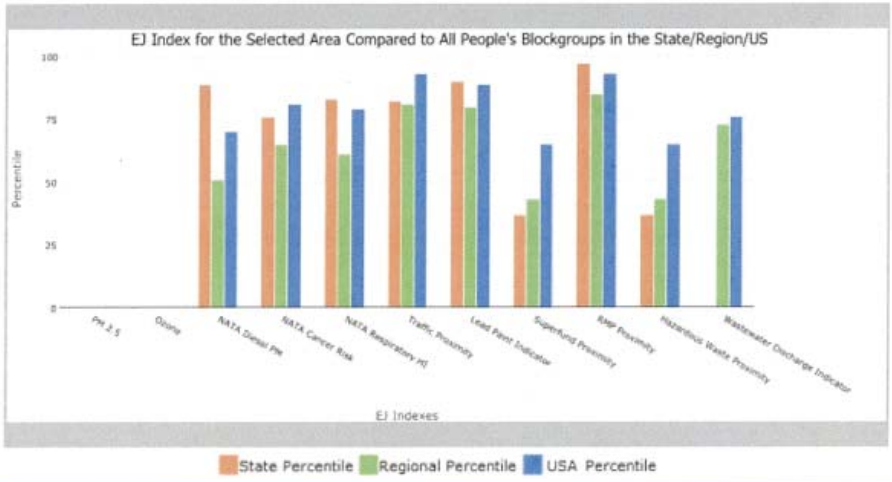
EJSCREEN Report (Version 2017)

1 mile Ring Centered at 20.895951,-156.456820, HAWAII, EPA Region 9

Approximate Population: 853

Input Area (sq. miles): 3.14

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
EJ Indexes			
EJ Index for PM2.5	N/A	N/A	N/A
EJ Index for Ozone	N/A	N/A	N/A
EJ Index for NATA* Diesel PM	89	51	70
EJ Index for NATA* Air Toxics Cancer Risk	76	65	81
EJ Index for NATA* Respiratory Hazard Index	83	61	79
EJ Index for Traffic Proximity and Volume	82	81	93
EJ Index for Lead Paint Indicator	90	80	89
EJ Index for Superfund Proximity	37	43	65
EJ Index for RMP Proximity	97	85	93
EJ Index for Hazardous Waste Proximity	37	43	65
EJ Index for Wastewater Discharge Indicator	N/A	73	76



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

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EPA United States Environmental Protection Agency

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 20.895951,-156.456820, HAWAII, EPA Region 9

Approximate Population: 853
Input Area (sq. miles): 3.14

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

EPA United States Environmental Protection Agency

EJSCREEN Report (Version 2017)

1 mile Ring Centered at 20.895951,-156.456820, HAWAII, EPA Region 9

Approximate Population: 853

Input Area (sq. miles): 3.14

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
Environmental Indicators							
Particulate Matter (PM 2.5 in µg/m³)	N/A	N/A	N/A	9.9	N/A	9.14	N/A
Ozone (ppb)	N/A	N/A	N/A	41.8	N/A	38.4	N/A
NATA* Diesel PM (µg/m³)	0.229	0.149	82	0.978	<50th	0.938	<50th
NATA* Cancer Risk (lifetime risk per million)	32	34	50	43	<50th	40	<50th
NATA* Respiratory Hazard Index	1.2	1	72	2	<50th	1.8	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	960	1000	77	1100	71	590	86
Lead Paint Indicator (% Pre-1960 Housing)	0.33	0.16	80	0.24	66	0.29	63
Superfund Proximity (site count/km distance)	0.006	0.1	19	0.15	5	0.13	1
RMP Proximity (facility count/km distance)	1.6	0.39	96	0.98	82	0.73	87
Hazardous Waste Proximity (facility count/km distance)	0.0062	0.1	23	0.12	2	0.093	2
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0	0.04	N/A	13	59	30	40
Demographic Indicators							
Demographic Index	67%	51%	90	47%	77	36%	86
Minority Population	94%	77%	83	59%	88	38%	93
Low Income Population	41%	26%	83	36%	60	34%	64
Linguistically Isolated Population	13%	6%	86	9%	74	5%	88
Population With Less Than High School Education	27%	9%	97	17%	73	13%	85
Population Under 5 years of age	9%	6%	81	7%	78	6%	80
Population over 64 years of age	26%	16%	89	13%	92	14%	92

* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: https://www.epa.gov/national-air-toxics-assessment.

For additional information, see: www.epa.gov/environmentaljustice

EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

January 18, 2018 3/3

Letter F – Response

The proposed project will comply with the requirements of HAR Chapter 11-200 related to addressing project impacts and public health. In preparing the FEIS, MANA reviewed the references suggested in this comment, including the environmental health land use guidance, the Healthy Communities Policy Guide, the Environmental Health Portal, and the referenced requirements related to the Clean Water Branch, Underground Injection Control, Wastewater Branch, Clean Air Branch, Solid Waste Management Control, Community Noise Control, Indoor Air and Radiological Health Branch requirements, Hazard Evaluation and Emergency Response, as well as the OEQC viewer. The FEIS identifies potential health impacts and contains proposed mitigation measures to address direct, indirect, and cumulative impacts.

Regarding Environmental Justice, there are no housing units located in the vicinity of the project. As such, no minority or low-income populations are expected to be adversely affected by the proposed project.

The effects of climate change, including sea level rise and coastal impacts, are discussed in various sections of the FEIS, including Section 2.1.6 and Appendix F. In addition, the proposed project is being pursued in part to offset the use of fossil fuels, and use renewable biogenic fuel to mitigate the effects of climate change. Appendix F contains a detailed GHG evaluation. MANA is committed to developing a project that is sustainable, innovative, inspirational, transparent, and healthy in design.

Meeting Notes G – Summary of Meeting Notes from Draft EIS Informational Public Meeting Kahului Elementary School, Kahului, Maui, dated January 24th, 2018.

MANA
MAUI ALL NATURAL ALTERNATIVE

January 24th, 2018

Comments and Questions raised during the January 24th Informational Public Meeting

MANA DEIS

Kahului Elementary School 5:30-7:30 PM	**Comment**
1. Provide additional information on the size of the system and inputs.	**G-1**
2. Why are the counties' biosolids not digested for power?	**G-2**
3. Provide visual impact information.	**G-3**
4. What are the potential odors and how are they controlled?	**G-4**
5. How is explosion risk mitigated?	**G-5**
6. What is the useful life of the contract and contract length, what is the counties' risk?	**G-6**
7. What is the nutrient management plan for digestate and dried biosolids or how will it be managed? There was concern over the ability of DOH to monitor what is done.	**G-7**
8. Why does the county make biosolids in the first place?	**G-8**
9. What testing will be done on the dried biosolids?	**G-9**
10. Provide an analysis of the GHG offset to the project and not just the GHG from the project.	**G-10**
11. Why Biogas and not Biodiesel; was the RFP too prescriptive, such that it excluded biodiesel and non-firm alternatives such as solar and wind?	**G-11**
12. This project will lead to the demise of EKO and force them out of business with no future plans for green waste programs.	**G-12**
13. What are our plans for the biosolids, are they safe and do they comply with EPA standards and regulations.	**G-13**
14. Biogas is flammable, why was it considered in a tsunami zone.	**G-14**
15. Why such a high price for electricity and sludge processing? Cheaper and more economical alternatives should have been considered.	**G-15**
16. Tsunami zone. Why are we constructing in the zone, close to the ocean front, etc.	**G-16**
17. Not enough information provided about the project to date.	**G-17**
18. Has a thorough analysis of the alternatives been completed?	**G-18**
19. Air quality standards, are they addressed and is there a carbon intensity reduction and is there an analysis of GHG offset?	**G-19**
20. Have odor controls been addressed?	**G-20**
21. Why was the project design in a combination format to include both sludge processing and energy and not separated into two separate projects?	**G-21**

Meeting Notes G – Response

Response to G-1

Section 1.4 of the FEIS describes the size of, and inputs to, the system; Figure 4 shows the proposed process flow; Appendix F contains additional sizing parameters; and Appendix A contains preliminary design drawings.

Response to G-2

The biosolids from the wastewater treatment plant are largely aerobically treated prior to arriving at the MANA site. Consequently they do not have much energy content and the scope of current project is limited to drying these biosolids using waste heat.

Response to G-3

Please see Response to M-8.

Response to G-4

Please see response to O-3.

Response to G-6

The Services agreement with the County is expected to be for 20 years. The County's risk would be minimized by contractually assigning certain project risk to MANA, including design, permitting, construction, commissioning, operation, maintenance, and decommissioning of the facility.

Response to G-7

Section 2.1.1 of the FEIS has been revised to clarify that digestate will be applied to the fields in agriculturally appropriate amounts consistent with a nutrient management plan that will be developed in consultation with and subject to the approval of the DOH and Maui County..

Response to G-8

The County of Maui operates sewage collection systems in the Kihei, West Maui, and Kahului/Wailuku area to collect residential and commercial sewage. These three County wastewater reclamation facilities treat the wastewater and remove the "biosolids," pursuant to operating permits. Other areas of Maui rely on individual septic systems or cesspools to collect sewage. Biosolids are solid matter extracted from the wastewater during treatment. All conventional wastewater treatment processes produce biosolids, which are nutrient-rich organic residuals. The EPA and DOH have established rules for managing the use and disposal of biosolids, which can be disposed of or treated and recycled for application as fertilizer to improve and maintain productive soils and stimulate plant growth. See also Response to G-9.

Response to G-9

Please see Responses to O-5, O-6, and O-7.

Response to G-10

Section 8 of Appendix F of the FEIS contains an analysis of the anticipated GHG emissions from the engine, flare and dryer. This estimate is conservative, in that it estimates the total amount of GHG that would be emitted, without considering any of the inherent GHG benefits of the project.

Response to G-11

Please note that the RFP did not exclude biodiesel. Addendum 1 of the RFP clarified that "Proposers may propose alternatives that meet the intent of the RFP which is to generate power for the wastewater facility using a renewable-fuel that moves the County toward the 100 percent renewable energy goal and has the added benefit of being able to dry the sludge produced by the Kahului Wastewater Reclamation Facility."

Furthermore, this EIS has been prepared not to evaluate the County's RFP, but to identify environmental and related impacts; solicit, consider, and respond to public comments; and evaluate potential alternatives. Accordingly, the alternatives analysis in Chapter 6 of the FEIS evaluated biogas, biodiesel, solar, and wind.

Response to G-12

Please see Response to Email Correspondence I.

Response to G-13

Please see Responses to O-5, O-6, and O-7.

Response to G-14

Regarding fire impacts and mitigation measures, please see Response to M-5; regarding tsunami impacts and mitigation measures, please see Response to C-1.

Response to G-15

See Response to H-2.

Response to G-16

Please see Response to C-1.

Response to G-17

The DEIS, as well as the two separate EISPN publications and other extensive early consultation activities, provide detailed information about the project. The DEIS was circulated according to the OEQC-approved distribution list, and was also announced in all the major newspaper publications in the State.

Response to G-18

Chapter 6 of the FEIS contains detailed analyses of alternatives to the proposed project.

Response to G-19

All equipment considered a point of emission will require a covered or non-covered point source DOH permit. All equipment currently considered meets the applicable state and federal limits for emissions for air pollutants including NOx, SOx, VOC, and CO. Fuel carbon intensity and reductions are not required as part of either the RFP or other applicable law; however, as noted in Response to G-10 and Appendix F of the FEIS, the project is expected to have significant GHG reduction benefits.

Response to G-20

Please see Response to O-3.

Response to G-21

There is synergy in onsite power generation and utilization of waste heat. This concept of "cogeneration" is not new to wastewater treatment plants. Please see Section 1.2 of the FEIS. As described in the project RFP, the County solicited proposals for projects that would both fulfil its long-term strategy to use clean renewable energy and transition to electric grid independence, and create an integrated sludge drying facility using exhaust heat, which would otherwise be wasted. The WKWWRF was determined by the DEM to be the most advantageous location to co-locate firm power generation near the point of use that would additionally provide waste heat to dry sewage sludge from the County's three wastewater reclamation facilities. As described in Response to H-2, a cogeneration system provides significant environmental and cost benefits.

Email Correspondence H – Email from Charlotte O'Brien, Founder & CEO, Carbon Drawdown Solutions, dated February 5th, 2018.

From: Charlotte O'Brien <charobrien@gmail.com>
Sent: Monday, February 5, 2018 9:12 PM
To: Arun Sharma
Cc: Danny Lucienne; Walsh Jeff
Subject: Re: Limassol Overview 2017.pptx

Thank you, Arun, for your response and thank you for the meeting last week. I appreciated that we all had a chance to voice our concerns. As you may know my company, Carbon Drawdown Solutions, partnered with a Swiss company to answer the RFP that Anergia won. I sincerely wish you all the luck in figuring out the puzzle that Maui County Trash to Energy presents. The moment that I can agree that your solution is in the highest interest of the people of Maui and our precious environment I will be your biggest advocate. But if I am not totally convinced that your solution is well thought out it is my duty to question you. Please do not take it personally - we are all on the same team when we work for the common good. H-1

I had three questions that were not answered the other night.

1. I think you misunderstood my first question in your response below. I have no doubt that a new CHP turbine can give you 80% efficiency compared to the old diesel engines at 20%. That is true no matter what fuel you put in the CHP turbine - they are great - I have seen them in action and they are certainly the way of the future. However, they only get 80% efficiency if there is a use for the captured heat and in this case I believe this use has been manufactured to benefit your balance sheet.

For now I am going to think like one of your engineers. "Hey, if we were to dry the bio-solids we would increase our turbine efficiency to an impressive 80%." Then speaking for your CFO - "And we would get the tipping fees of $81/ton for taking 24,000 tons of dewatered sludge out of the waste stream and that makes the business model pencil out. Just selling electricity alone would not pay for the needed capital expenditure but by adding the tipping fees from the sludge we now have a business plan that shows a good ROI." H-2

And, really Arun, I understand that if the business model does not cash flow there is no sense in doing the project. BUT if the project pencils out at the expense of another piece of the puzzle or creates unintended consequences then we are all better off for figuring that out now.

So before the environmental activists of Maui can get behind this solution we need to understand a few things:

What will happen to our green waste? H-3

1

How will we replace the value of the green waste compost in growing tree food crops as we work towards island wide food security? H-3

What will we do with the often problematic bio-solids as I saw when I visited the Boston facility where they had repeated fires in their silos and could not sell the product because of public repulsion. H-4

How is this solution superior to composting the dewatered sludge and thereby turning mountains of green waste into useable compost? What will happen to this green waste when we have no nitrogen source to adjust the carbon to nitrogen ratio? H-3 (continued)

Why should we put additional infra-structure in a tsunami zone when we can, as Bob King said, generate enough green energy from the current renewables while using the current turbines with an addition of some PV power that could even be built outside the tsunami zone. H-5

Apparently the new system is going to take more energy as you continue to talk about a 1 MW system whereas the current 550kW system is handling the operations. What will your new energy load be? Why is such a simple thing not transparent? H-6

I understand that Mr. Slant believes that PV batteries cannot store more than one half an hour of electricity at the high rates needed but I understood that Haleakula Solar had a contract to supply the needed energy. I find it difficult to believe that Haleakula Solar would have entered into a contract that they could not complete. So I really need to hear from Haleakula Solar that they cannot supply the needed energy especially in concert with our two other sources of green energy currently on the island - wind and diesel fuel made from french fry oil. H-7

2. Now back to the question I was really asking the other night: What is the overall **energy in to energy out** when growing purpose grown energy crops? According to Rick Volner, this is not done anywhere else in the country and is an experiment (see his video taped presentation to the County Council). You said you had studied it. I would really like to see a study that shows the amount of fossil fuels it takes to grow the crops, to make the methane, to transport the bulky crop to the WWTP, to dispose of the digestate, etc to offset the diesel fuel otherwise used. This study must include the use of: H-8

Petroleum based fertilizers
Petroleum based herbicides and pesticides
Tractor deisel
The energy used to ship these items to the island
Transport of the crops to the Anaerobic Digester
Energy used to build and operate the AD

I understand that it pencils out financially only because we pay such high prices for electricity - however that does not mean that it pencils out environmentally. If we pollute just as much to create the methane then we are robbing Peter to pay Paul. If we also take 500 acres out of potential food production then we are really shooting ourselves in the foot!

Steve Apfelbaum is an internationally recognized ecologist who specializes in the carbon cycle. He has worked with many of the major fossil fuel companies - BP, Shell, the USDA, etc. on analyzing the use of "purpose grown bio-fuel crops" and he has told me that the majors have discontinued their research as it just does not pencil out. When you do send us your study Steve is willing to look it over.

Remember it was for lack of looking at exactly this that we are currently creating dead zones in the Gulf of Mexico. The American people were sold a bill of goods during the build up to corn ethanol. We were told that we would get 3 BTUs of fuel for every 1 BTU that went into the production of corn. This seemed like a good idea but after the US government spent billions or perhaps trillions on subsidies we now know that it is a 1:1 ratio or less and the unintended consequence is that millions of tons of fertilizers wash down the Mississippi River every year. But due to govermental bureaucracy once built the ethanol plants must continue to run to fulfill their contracts despite this environmental travesty. The environmental balance of our island is fragile and we **must not be cavalier** about broad stroke changes such as this to our little eco-system.

H-8 continued

3. My third question is why are we drying out bio-solids in the first place when we have a perfectly good system for making compost? How did that decision get made and by whom? Why are we fixing something that is not broken? Who is responsible for this?

I understand your concern about Maui activists, Arun. As one of many environmentalists on this island I am very much in favor of a good waste to energy system and will applaud Anaergia if they can deliver it to us. However, like so many of us I will be vetting any solution that is put forward. The concern that I expressed to you the other night is that the new promising technologies are not quite refined yet. You agreed and suggested that perhaps you would simply put the RDF back in the land fill. It may surprise you that I am not opposed to that as long as there is a plan to one day take the blocks back out and use it in a pyrolysis or gasification plant.

But what I am vehemently opposed to is taking one piece of our waste to energy puzzle and solving it in isolation without seeing how that fits into the larger picture. This seems unwise. So please help me to understand what it is that I am missing that makes this plan a good one for Maui County and for the environment of our precious island. If you can convince me I will be on your side. So please try because I still don't get that it is a good idea.

H-9

You had mentioned your facility in Carlsbad, CA and you said you would send me information on it. I would appreciate that.

Let's continue to work together to find the best solution for the island and her people as well as Anaergia. I love triple wins!

Blessings on your work. It is a new an exciting era for environmental technology and I applaud you all for working in this area. I understand that it is not easy!

Sincerely,

Char

Char O'Brien
Founder & CEO
Carbon Drawdown Solutions
charlotte@cdsbiochar.com
cdsbiochar.com
Phone: 808 344 5339
Skype: Soil Carbon

Email Correspondence H – Responses

Response to H-1

The proposed solution has been "thought out": wastewater treatment plants all over the U.S. routinely manage their biosolids by drying them prior to final use or disposal. The City and County of Honolulu has a successful biosolids program which uses land application for the biosolids. For more details, please see Responses to O-5, O-6, and L-7.

Response to H-2

Please see Section 1.2 of the FEIS. In consideration of the needs of the wastewater reclamation division of the DEM, in the context of overall operations of the department and commitment to sustainability, the County performed a cost benefits analysis, taking into account environmental concerns. Cogeneration is a proven technology that the County determined would result in overall economic and environmental benefits, and electrical efficiency of biogas generation can exceed 40% efficiency, even without the beneficial reuse of heat. The alternatives analysis of Chapter 6 of the FEIS provides additional cost analyses.

Response to H-3

Please see Response to Email Correspondence I: the proposed project will not curtain the generation of green waste compost, sources of nitrogen will continue to be available on-island, and many viable uses for green waste will remain. With respect to food security, please see response to N-2.

Response to H-4

With respect to fire considerations and mitigation, please see Response to M 5. Biosolids drying facilities are inherently safe when operated under safety and regulatory protocols. There are hundreds of such operating facilities running safely. With respect to the biosolids, while we do not know which "Boston facility" the commenter is referring to, or what its issues may be, please see Responses to O-5, O-6, and O-7.

Response to H-5

Please see Response to C-1 regarding tsunami mitigation measures, and Response to C-2 regarding the prohibition of wheeling, which requires the project to be located on the WKWWRF site, in accordance with the RFP. Chapter 6 of the FEIS evaluated alternatives such as biogas, biodiesel, solar, and wind.

Response to H-6

Section 2.4.1 of the FEIS has been revised to clarify that the electric loads at the WKWWRF are expected to peak at 640KW, with an expected minimum requirement of 450KW. The proposed project will need to follow this cycle (i.e., "load follow"). An additional 200KW (a "parasitic load") would be required to operate the proposed project. Therefore, incorporating a margin of safety, the system has been sized to provide 1,000 kW of electrical power.

Response to H-7

Chapter 6 analyzes alternatives, including alternative 3 and 4, which use battery storage of power. Therefore, the FEIS does not assume that there is anything inherently infeasible about battery storage.

Response to H-8

Bioenergy plants such as the proposed project successfully operate throughout the world; please see Response to N-5.

Response to H-9

As described in the RFP, and the response to Letter B, the County determined its need to economically produce renewable electricity and manage its biosolids in a more cost effective manner. As described in Chapter 6 of the FEIS, a cogeneration facility such as the proposed project meets these needs, while providing significant cost savings and environmental benefits.

Email Correspondence I – Email from Rubens Fonseca, Plant Manager, Maui EKO Systems, Dated February 5th, 2018.

From: Rubens Fonseca <rubens.mauieko@gmail.com>
Sent: Tuesday, February 6, 2018 2:10 AM
To: stewart.stant@co.maui.hi.us; Walsh Jeff
Subject: Mana Project at the Wailuku-Kahului WWTP

EKO does not agree that the proposed Mana Project will save the County money rather than sending the biosolids to be composted.

The biosolids are only responsible for 3/4 of our contract (approx. ----/year).
The other 1/4 includes commercial greenwaste, F.O.G. (fats, oil and grease), private sludge (Pukalani WWTP) and Grit from lift pump stations.

We would like to mention that our two last contracts with the County were short term contracts. Without the possibility of reinvesting in new equipment the County left us with no choice but to raise our tipping fees to cover higher maintenance costs, including hiring more help.

Since the start of our operations in 1995, the biosolids have been subsidizing the cost of handling commercial and free of charge residential greenwaste.
Over the course of these 22 years greenwaste has been the only feedstock with a noticeable tonnage increase. With the maturity of landscaped areas and the continuing growth of housing developments, it is expected that this tonnage will increase.

Without the co-composting operation what is the plan to handle Maui's growing greenwaste?

The expense to grow specific crops for the future digester at Mana, plus the energy required to dry the sludge (average 85% water content) added to the uncertain market for the once dried sludge, it can not be compared to the simplicity of composting.

EKO already produces a Class "A" biosolids by-product, tested by an independent lab to satisfy Federal (EPA) and State regulations (DOH).
Also EKO is a founding member of the STA (Seal of Test Assurance) managed by the US Composting Council.

We sell our products State wide.

We urge you to research about Synagro's heat/dried/pelletized sludge from the Sand Island WWTP. It's known that their product has a difficult time to reach markets.

We are supporters to have a digestor installed in our community to help our organic materials diversion efforts from the landfill while producing a clean alternative energy source. Maui should look at other states anaerobic digester projects utilizing foodwaste and composting the digestae obtaining a more stable product.

Sincerely,

Rubens Fonseca
Plant Manager
Maui EKO Systems

1

Email Correspondence I – Response

The proposed project will process County wastewater sludge that is currently processed by Maui EKO Systems, but will not consume its greenwaste. Elimination of the wastewater sludge from EKO Compost does not curtail the firm's ability to create compost from greenwaste and other organic streams.

Continuing the current practice of composting the biosolids at Maui EKO Systems' operation is the "status quo" alternative, which has been analyzed and considered in Section 6.4.2 of the FEIS.

As described in the RFP, and in the response to Letter B, above, the County determined its need to economically produce renewable electricity, in accordance with the State mandate to achieve 100% renewable energy, and also manage its biosolids. The proposed project takes advantage of the synergy available by achieving both goals at a single cogeneration facility operating on renewable energy, while producing a Class A product.

With respect to MANA's affiliates' substantial experience in similar facilities, please see Response to N-5.

Letter J – Letter from State of Hawaii, Department of Land and Natural Resources, dated February 5th, 2018.

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE
MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

February 5, 2018

Mana LLC
Attention: Mr. Jeff Walsh
Project Business Development Manager
c/o Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Hawaii 96793

via email: jeff.walsh@anaergia.com

Dear Mr. Walsh:

SUBJECT: Draft Environmental Impact Statement (EIS) Renewable Energy Conversion and Sludge Processing from the **Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project** located at Wailuku, Island of Maui; TMK: (2) 3-8-001:188 (por.)

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

At this time, enclosed are comments from the (a) Engineering Division and (b) Land Division – Maui District on the subject matter. Should you have any questions, please feel free to call Darlene Nakamura at (808) 587-0417. Thank you.

Sincerely,

Russell Y. Tsuji
Land Administrator

Enclosures
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

'17 DEC 29 AM 10:35 ENGINEERING RECEIVED

2018 JAN 19 AM 11:04 DEPT OF LAND & NATURAL RESOURCES STATE OF HAWAII LAND DIVISION

December 28, 2017

MEMORANDUM

FROM

TO

TO: **DLNR Agencies:**
__Div. of Aquatic Resources
__Div. of Boating & Ocean Recreation
X Engineering Division
__Div. of Forestry & Wildlife
__Div. of State Parks
X Commission on Water Resource Management
__Office of Conservation & Coastal Lands
X Land Division – Maui District
X Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Impact Statement (EIS) Renewable Energy Conversion and Sludge Processing from the **Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project**
LOCATION: Wailuku; Island of Maui; TMK: (2) 3-8-001:188 (por.)
APPLICANT: Maui All Natural Alternative, LLC (MANA)

Transmitted for your review and comment is information on the above-referenced project. Please submit any comments by **February 2, 2018.**

The Draft EIS can be found on-line at: http://health.hawaii.gov/oeqc/ (Click on the Current Environmental Notice in the middle of the page.)

If no response is received by this date, we will assume your agency has no comments. If you have any questions about this request, please contact Lydia Morikawa at 587-0410. Thank you.

additional

( ) We have no objections.
(✓) We have no comments.
( ) Comments are attached.

Signed: _____

Print Name: Carty S. Chang, Chief Engineer
Date: 1/18/18

Attachment
cc: Central Files

DAVID Y. IGE
GOVERNOR OF HAWAII

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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LAND DIVISION
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STATE OF HAWAII
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December 28, 2017

MEMORANDUM

RECEIVED
2018 JAN 24 AM 10:51
DEPT OF LAND & NATURAL RESOURCES
STATE OF HAWAII
LAND DIVISION

TO: **DLNR Agencies:**
___Div. of Aquatic Resources
___Div. of Boating & Ocean Recreation
_X_ Engineering Division
___Div. of Forestry & Wildlife
___Div. of State Parks
_X_ Commission on Water Resource Management
___Office of Conservation & Coastal Lands
_X_ Land Division – Maui District
_X_ Historic Preservation

FROM: Russell Y. Tsuji, Land Administrator
SUBJECT: Draft Environmental Impact Statement (EIS) Renewable Energy Conversion and Sludge Processing from the **Wailuku-Kahului Wastewater Reclamation Facility (WKWWRF) Project**
LOCATION: Wailuku; Island of Maui; TMK: (2) 3-8-001:188 (por.)
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( ) We have no objections.
(X) We have no comments.
( ) Comments are attached.

Signed: _____

Print Name: Daniel Ornellas
Date: 1/17/18

Attachment
cc: Central Files

Sm 1-11-18
1/9/18

Letter J – Response:

These three letters do not raise any issue to respond to, but are included for completeness.

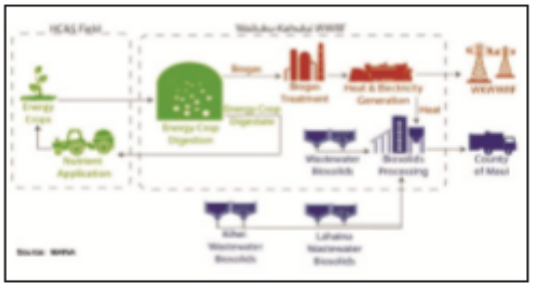
Information Article K – Article from Environment Hawaii, Monthly publication, February 2018, dated February 5th, 2018.

NEW AND NOTEWORTHY

Kahului Questions: A company that wants to use energy crops from 500 acres of Alexander & Baldwin land on Maui, produce biogas, and use the fuel to run a power plant that will provide electricity to Maui County's Kahului wastewater treatment plant has published a draft environmental impact statement (DEIS) for the facility.

The company, Maui All-Natural Alternative, or MANA (a subsidiary of alternative energy giant Anaergia), has signed an agreement with the county that calls on it also to take sludge from all three Maui County wastewater plants — at Lahaina and Kihei, in addition to Kahului — and dry it out by use of waste heat and excess biogas. After drying, the DEIS states, the sludge "will be considered a Class A fertilizer that will be returned to the County of Maui for its use as a soil amendment."

But the DEIS is unclear on whether the plant will be linked to Maui Electric's grid. The main text says no, as do several letters written last fall in response to the EIS preparation notice and appended to the DEIS (including a letter to the Department of Land and Natural Resources' Office of Conservation and Coastal Lands).



Schematic of the biofuel power plant proposed for the Kahului wastewater treatment facility.

But an appendix produced after those letters says yes. According to an air quality study by Trinity Consultants of Sacramento, bearing a date of November 17, the plant "will produce 600 kW of gross electricity on average, 480 kW of which will be sold to the utility and the remainder used on site." That would suggest the wastewater treatment plant demand is around 320 kW.

Jeff Walsh, Anaergia's director of business and development for Hawai'i and the Pacific, told *Environment Hawai'i* that the plant will not be producing any power for export and that the statement that it will, by Trinity, is "a misquote. … All power will be consumed onsite."

Elsewhere in the DEIS, there's the suggestion that the 600 kW won't even be sufficient to power the sewage treatment plant. In a letter to the Maui group of the Hawai'i Sierra Club, MANA's Jeff Walsh stated that the sewage treatment plant "will not be taken off the MECO grid. … During normal operations, the [wastewater treatment plant] will be supplied by both MECO and MANA power."

Comments on the DEIS are due by February 6. For more information and a link to the DEIS, see the Office of Environmental Quality website: *oeqc.doh.hawaii.gov*.

Hu Honua Remand: The Intermediate Court of Appeals has issued a ruling in the appeal of the Hawai'i County Windward Planning Commission's decision in 2011 allowing the Hu Honua power plant to move forward.

The ICA rejected several of the arguments made by the plant's opponents but found in their favor in one key respect. At the time the amended Special Management Area permit was approved in 2011, Hu Honua had no stated plans to work in the coastal area or within the SMA more generally. However, an ocean outfall that jutted out from the face of the cliff fronting the plant was later discovered to be broken off at the cliff face.

During the contested-case hearing on the amended SMA permit, representatives of Hu Honua said they were continuing to investigate ways to address the collapsed outfall. But the Planning Commission made no finding of fact or conclusion of law to address this.

"Thus, because it is not clear what repairs or replacements will take place with regard to Outfall 001, Hu Honua did not make an affirmative showing that any work done will not conflict with the principles and purposes of the public trust doctrine," the ICA panel found. "Therefore, … the Planning Commission granted the amended SMA permit in violation of constitutional provisions."

The matter was remanded to the Windward Planning Commission with instructions that it should address the impacts to the shoreline from repairing or replacing the outfall.

Corrections: In our December "Board Talk" item on Maui water permits, we incorrectly stated that 2016's Act 126 grew out of the 2015 legislative session. Also, in our January cover story on Maui water issues, a caption erroneously stated that the photo depicted a stream gage in Waikapu Stream. In fact, the photo shows a gage on the Parshall flume flowing into Reservoir #1.

Quote of the Month

"I think people are going to walk from properties. People are going to create shell companies that are going to hold properties they think they're going to abandon."

— *Chris Yuen, Land Board*

Environment Hawai'i
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Patricia Tummons, Editor
Teresa Dawson, Managing Editor

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ISSN 1050-3285

Information Article K – Response

This article in a monthly publication was not submitted as a comment on the DEIS, but has nevertheless been considered in preparing the FEIS. In response to the questions implied in the article, Section 2.4.1 of the FEIS confirms that the WKWWRF would remain connected to the grid, which would supply any required supplemental power, and has been revised to also clarify that the proposed project will not export power to the MECO grid. Figure 4, Project Process Flow Chart, has been revised to clarify the connection to the grid.

Letter L – Letter from Robert A. King, President, Pacific Biodiesel Technologies, LLC, dated February 6th, 2018.

PACIFIC BIODIESEL TECHNOLOGIES

40 Hobron Avenue
Kahului, Hawaii 96732
(808) 877-3144
www.biodiesel.com

February 2, 2018

Scott Glenn
Director, OEQC
235 S. Beretania Street, Rm 702
Honolulu, HI 96813

Dear Scott,

This letter is in reference to the DEIS for the MANA sludge drying project the Kahului WWTF, Kahului, Maui, HI.

1. The price charged to the County of Maui for electricity is hard to justify. Non-firm renewables are available at 1/3 the listed price. Quick firing biodiesel generators are lower than the listed price per kW, and are only used for the hours needed – which may be less and less hours as technology gets better over the next few years. L-1
2. Will Anaergia/MANA become a Public Utility in order to sell power to the County of Maui? If so, has the application been prepared for the PUC? L-2
3. What is the GHG equivalent for the power produced? All farming costs and fuel consumption should be evaluated. Since the waste heat is used to only dry sludge, this heat is still waste and would not be calculated as GHG eliminated. L-3
4. Propane from Maui Gas (an Anaergia affiliate) may be used in the process. This must also be calculated into the overall GHG equation. L-4
5. A typical WWRF digester would use the sludge for digestion, along with other materials such as food scraps and waste agricultural products (rarely if ever purpose grown crops). The digestate would then go to a composting facility for final re-use. L-5
6. Applying the dried sludge to the Central Maui Landfill as daily cover should be banned. This is not a good use of energy and funds. L-6
7. The application list land application of the dried sludge as a final disposal means. Under what DOH permit will this be allowed? Will this be the first permit for this type of material to be issued in Hawaii? What is the backup plan if not approved? L-7

8. The County of Maui Department of Environmental Services has a conflicted interest in being the Approving Agency, since this is in fact a project on their site. Please assign another Agency, preferable a neutral State Agency. L-8
9. What are the tsunami mitigation measures for this project? What is the contingency plan should the digester structure be breached in a tsunami? Do the measures meet or exceed current Federal and State standards and recommendations for this location? L-9
10. Under "Renewable Energy Supply" the document states "The energy solution(s) and sources would have to be competitive with non-renewable energy, yet practical and affordable within the context that no financial burden or liability would be realized by the County" - yet the cost structure proposed would appear to already be an increase relative to current MECO rates. If other MECO and off-site renewables stabilize or reduce the current electric generation costs over the long run, the statement on competitive nature will never be true. L-10
11. Current businesses are already processing the sludge for application on farms outside of the Central Maui Landfill. I didn't see a mention regarding the actual avoided cost of sludge disposal if a similar 20 year contract were offered for composting. This amount would be significantly lower than the 2 or 3 year contracts that County has issued previously. L-11

Thank you for the opportunity to comment on this proposal.

Aloha,

Robert A. King

Robert A. King, Pres.
Pacific Biodiesel Technologies, LLC

Letter L – Response

Response to L-1

Regarding the costs and purposes of the project, please see Response to Letter B and Response to H-2. Regarding biodiesel as a potential alternative to the proposed project, please see the detailed analysis in Section 6.4.6 of the FEIS.

Response to L-2

The proposed project would not result in a Public Utility. See HRS, Chapter 269.

Response to L-3

Regarding GHG emissions, please see response to G-10. Appendix F to the FEIS contains a detailed GHG analysis that analyzes potential GHG emissions, providing far more detail than is required by any relevant authority.

Response to L-4

MANA does not does not have any business affiliation with Maui Gas.

Propane is not allowed to be used in the generation of renewable power sold to the County. Propane is not generally anticipated to be used for sludge drying; however, because power generation must fluctuate to meet the County needs, there may be occasional need to use propane for process stabilization as a back-up fuel source for biosolids drying. The GHG analysis shown in Appendix F analyzes this incidental use, and estimates that up to 9,555 ton per year may be generated from all onsite sources, including backup propane power. This maximum GHG anticipated from the cogeneration and drying facility is less than the significance threshold for GHG emissions. These emissions would be slightly higher if propane where combusted in the dryer burner (air heater) instead of biogas: biogas has a rating of approximately 115 lb CO2e per MMBTU while propane is approximately 139 lb. carbon dioxide equivalent ("CO2e") per MMBTU (i.e., biogas generates approximately 17% less GHG than propane). To illustrate the maximum conceivable impact, if propane were used for the entire dryer load instead of biogas (which it will not), then the total air heater CO2e would increase to 2,324 tons per year ("tpy"), i.e., approximately 387 additional tpy of CO2e for the site. This would still be below the significance threshold. The proposed incidental use of propane as a backup source would have much less impact.

Response to L-5

The comment is noted, but this is not a wastewater recovery facility digester.

Response to L-6

There are several potential beneficial uses for dried biosolids available to the County, and the proposed project does not curtail any of the options available to the County. Should the County consider using any material for daily cover at the landfill, the DOH would need to review such a proposal, which would be subject to all applicable rules and regulations, including those in HAR Title 11, Chapter 58.1.

Response to L-7

Please see Responses to O-5, O-6, and O-7.

Response to L-8

Please see response to O-1.

Response to L-9

Please see Response to C-1.

Response to L-10

Please see the response to Letter B and Response to H-2.

Response to L-11

Please see the response to Letter B and Response to H-2.

Letter M – Letter from Albert Perez, Executive Director, Maui Tomorrow Foundation, Inc., dated February 6th, 2018.

February 6, 2018

Stewart Stant
Department of Environmental Management
County of Maui
2050 Main Street, Suite 2B
Wailuku, Maui, Hawaii 96793

Albert Perez
Executive Director
Maui Tomorrow Foundation, Inc.
55 North Church St, Suite A-4
Wailuku, HI 96893

Re: Draft Environmental impact Statement for Maui All Natural Alternative LLC's "Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility" Project

Dear Mr. Stant:

Thank you for the opportunity to comment on the subject Draft EIS. Maui Tomorrow Foundation believes that the current draft is inadequate and defective in the following respects:

1. The Maui County Department of Environmental Management (DEM) issued a request for proposals for this project; Maui All Natural Alternative LLC responded, and was the winning bidder. Now Anaergia is proposing this project to satisfy a need identified by DEM at the Kahului WWTF, a County facility. The proposed project would be integrated into the Kahului Wastewater Treatment Facility. The land is owned by the state, and the County has been granted the right to operate the facility pursuant to an executive order. Therefore, the agency (DEM) should be the applicant in the EIS process, not Maui All Natural Alternative LLC. M-1

2. Applicant has failed to adequately describe the environmental impacts due to odor and has identified no mitigation measures or alternatives.

The county proposes to truck three different waste streams to this facility - one for each of the County's wastewater plants. However, the technology used in one of those (Lahaina) is materially different, as there is no on-site aerobic treatment at that wastewater plant. The material from Lahaina is likely to be significantly more odiferous than the sludge streams from Kahului or Kihei, which have at least undergone aerobic digestion. The DEIS states that odors are hard to measure and that tradewinds would tend to disperse them. The DEIS needs to M-2

consider how the impact of over 60 tons per day of sludge will affect the public's use of the adjacent and downwind bird sanctuary. The odors from this facility are likely to "curtail the range of beneficial uses of the environment" as prohibited by Ch. 343. Birdwatchers and other nature lovers will not be able to access the bird sanctuary without being assaulted by the odor of human excrement. Indeed, all those who recreate in the Kanaha Beach Park area, cruise ship passengers and harbor employees, and commercial and residential areas of Kahului as well, will be impacted by these noxious odors. Already, there is an unpleasant stink in the Ka'anapali and Honokowai areas at night when the wind shifts and brings the WWTF odors makai.

The increase in noxious odors may have adverse effects on the birds that occupy the sanctuary, and the EIS needs to provide adequate information on how this issue has been evaluated.

In addition to odor, the applicant needs to analyze what other chemicals are likely to be emitted by the facility in addition to Hydrogen Sulfide. The waste stream will not have been treated to remove or neutralize the many Volatile Organic Compounds (VOCs) in this material, the composition of which will vary.

In terms of mitigation measures, there are well known alternatives such as thermal oxidizers that can process the emissions before leaving the stack, but despite the obvious risk of releasing noxious odors into the surrounding community, the applicant has not designed around the likely need to add such devices to avoid a nuisance situation. The applicant should be required to state in advance what conditions will trigger additional mitigation efforts, and must build the facility in a way that allows the subsequent addition of the emission control devices that will be needed to make conditions tolerable for nearby residents and users of the bird sanctuary, including the birds.

M-2

3. The EIS needs to analyze the environmental and economic impacts of the proposed land application of approximately 5 million gallons/day of reclaimed wastewater on approximately 500 acres of land to be used to grow crops for energy. The amount of water being used per megawatt of power generated is an order of magnitude higher than required for most types of power generation. The County Department of Environmental Management has made conflicting statements as to whether the water will be R1 or R2 wastewater, and the environmental impact of land applying the material cannot be analyzed until the composition is known. The draft EIS also needs to analyze the changes that must now be made to the Lahaina wastewater system due to the recent 9th Circuit Court decision that says injection wells violate the Clean Water Act, and contaminate the ocean with reef-harming pollution.

Regardless of whether the material is R1 or R2, the EIS needs to discuss plans to store the water in rainy conditions which might last for a week or more in various seasons. Applying high nitrogen content wastewater to former sugar cane land like this raises questions about where the nitrogen goes once the soil has reached its practical carrying capacity for the material. The applicant needs to study the geology of the area for land application and determine where the material will end up. At the present time, residents of Upcountry Maui are being told that they

M-3

will need to upgrade cesspools because of high nitrogen levels polluting ground water; the Applicant also needs to address this issue.

At the public information meeting of January 24, 2018, DEM Director Stant claimed that bringing 4.4 mgd of R-2 water to irrigate 500 acres of former sugar cane land is a separate project, and that the disposal of the wastewater is "not part of this EIS". However, HAR Sec. 11-200-7 provides that "a group of actions proposed by an agency or an applicant shall be treated as a single action when: A. The component actions are phases or increments of a larger total undertaking." Failure to address the impacts of R-2 irrigation on the 500 acres of former sugar cane land would constitute improper segmentation of one project into components falsely claimed to be unrelated. M-3

4. The new digester and methane-fueled burners will be located in the hazard zones for tsunamis and sea level rise. The county has argued that all the risks of a flooding disaster will be borne by MANA and not the county, but this promise addresses only the financial risk. If a large tsunami overwhelms the new facility, there would be human waste spread over much of the low lying areas of Kahului. The draft EIS ignores this health risk. It is not in compliance with HAR 11-200-12(K) , which requires an evaluation of any damage that may occur from being located in such hazard zones. M-4

5. The project will entail storage of flammable gas and nitrogen-rich sludge, each of which poses a fire and explosion hazard. The EIS needs to adequately evaluate these risks, or it will be in violation of HAR 11-200-12(D) ("substantially affects the economic or social welfare of the community"). M-5

6. Alternatives to this project have not been adequately evaluated, although such evaluation of alternatives is required by HRS 343-5(a)(1). It makes more sense economically and environmentally to move the entire treatment facility to higher, more centralized land already zoned as industrial, such as the site of the abandoned Pu'unene sugar mill. In such a location, the use of solar photovoltaic arrays coupled with battery storage would provide cheaper electricity, and greatly reduce the emissions of greenhouse gases, as no methane need be burned. The county DEM acknowledges that relocation of this wastewater reclamation plant will be necessary eventually, probably within the window of 2019-2039 that the proposed PPA runs, assuming the project becomes operational by the end of next year. In such a case, the county plans to relocate this MANA building and its contents if the relocation occurs before the PPA 20 year term has ended. Far better to make that move now in conjunction with adding new technology to digest and dry the sludge.

It is also a waste of everyone's time to focus on the environmental issues of this proposed project when the County Council has never vetted or approved the Power Purchase Agreement, the sludge drying agreement, the agreement with A&B to sell it millions of gallons of irrigation water, nor the agreement with the state airport authority to increase the diameter of a M-6

wastewater pipe running under the airport to handle the water being sold to A&B. Until the County Council approves all these contracts, this EIS exercise is premature. M-6

7. The environmental impact of disposing of the dried sludge end product needs to be evaluated; because no economic analysis has been done of the hypothetical market for this "fertilizer". The county proposes to use a small fraction of this nitrogen rich end product to irrigate county parks; an analysis should be performed comparing the environmental risk of such a switch from its current fertilizer use. The county hopes to sell this "fertilizer" but has not identified any customer or market for it; this analysis also needs to be part of the EIS. One proposed disposal method is to spread excess end product on the landfill, but no analysis of any environmental hazard this might create has yet been done; it needs to be done in order to comply with Ch. 343. Failure to consider this part of the project would also constitute improper segmentation, and would be a violation of HAR Sec. 11-200-7 A. M-7

8. The height of the digester is at least 60', while the emissions stack is planned at 59'. The large digester orb will clearly be visible for those driving down Haleakala Hwy, and will obstruct shoreline views in the immediate area. On page 36 of the DEIS, it says: "The proposed project is designed to cover less than an acre of property, with structures **generally less than 70 feet in height above grade** and with an exhaust stack of 59 feet in height."
The following page 37 shows existing photos of the W-K WWTF. Then on pages 121 and 122 (of the document, not the pdf) in the preliminary site renderings of the site and new buildings, and in the site diagram rendering on page 165, the digester looms large above existing buildings at the site. The applicant needs to provide a side-by-side comparison of their renderings and the perspective of the page 37 photos to determine real visual impacts. The applicant's statement on page 36 that the shoreline view is currently obscured by ironwood trees and shrubbery, and that the new buildings would "blend into the industrial landscape of the immediate vicinity" is simply not true: these new buildings would be the tallest structures on Amala Place, and would be visible from many miles away. The failure to evaluate such issues is a violation of HAR 11-200-12(L). M-8

9. The EIS needs to evaluate the net quantity of emissions of NOx that will be added to the Kahului air over the next few decades, relative to existing conditions and known plans for other emission sources. In the section of the DEIS analyzing air emissions, the applicant argues that its emissions will be less than the nearby Kahului Power Plant, where units date back to 1947. The EIS needs to acknowledge and discuss the fact that MECO has committed to close the Kahului Power Plant in the next few years. Not only is the DEIS comparison inherently misleading, but the reasons why the utility will be abandoning this location as a power plant need to be discussed (tsunami zone, road flooding, nearby bird sanctuary, and being upwind of a population center); these same issues apply to the proposed project location - a few hundred yards away - where the applicant wants to erect a 60 foot tall facility with a 59 foot tall stack. M-9

Mahalo for the opportunity to comment.

Albert Perez
Executive Director
Maui Tomorrow Foundation, Inc.

cc:

Jeff Walsh
Maui All-Natural Alternative (MANA)
5870 Fleet Street, Suite 301
Carlsbad, California, 92008

Scott Glenn, Director
Office of Environmental Quality
235 South Beretania Street, Suite 702 •
Honolulu, Hawai'i 96813 •

Letter M – Response

Response to M-1

Please see Response to O-1.

Response to M-2

Contrary to this comment, odors impacts and mitigation measures were identified in the FEIS; please see FEIS, Appendix F. While it is true that the Lahaina plant does not currently have an aerobic clarifier, one is currently being installed, and is expected to be operational by the time the proposed facility is operational. Regardless, Section 2.1.14 of the FEIS has been revised to clarify that odor has been identified as a potential impact, and mitigation measures will be implemented. Please see Response to G-4.

Response to M-3

R1 and R2 are not available from the WKWWTP and the project does not propose use of R1 or R2 water. While the use of R1 and R2 was discussed at the public meeting, it is not part of the proposed project, and that is why it is "not part of the EIS." Therefore, there is no segmentation issue as described in HAR § 11-200-7. If the beneficial use of R-1 or R-2 recycled water is considered in the future, that decision will undergo its own environmental review. Section 2.4.2 of the FEIS has been revised to confirm that neither R-1 nor R-2 wastewater will be used by the proposed project.

Response to M-4

Regarding tsunamis and related mitigation measures, please see Section 2.1.6 of the EIS and Response to C-1. (We also note that there is no HAR § 11-200-12(K); presumably the comment relates to the Significance Criteria of § 11-200-12(11), which requires the preparation of this EIS, which has been performed.)

Regarding the flood zone, as described in Section 1.6 of the FEIS, County Codes require the facility acquire a Flood Development Permit prior to construction within a flood or tsunami zone. The Flood Development Permit Regulates construction in areas subject to flood hazards for the protection of life and property, the reduction of public costs for flood control, rescue and relief efforts and to promote the safety, health, convenience and general welfare of the community. Under the proposed project, the County of Maui would continue its current process of generating and temporarily storing wastewater sludge at the WKWWRF in accordance with appropriate flood zone requirements.

Response to M-5

Section 2.4.5 has been added to the FEIS, acknowledging that, in the absence of appropriate design and planning, the storage and generation of combustible biogas can pose fire and explosive risk. Section 2.4.5describes fire protection mitigation measures that will be employed, in order to provide a reasonable level of protection against loss of life and property from the risk of explosion and fires.

Response to M-6

The County of Maui, DEM, confirmed that relocation of the WKWWRF is not actively being considered.

Response to M-7

Please see Responses to O-5, O-6, and O-7, which discuss the analysis of potential impacts due to the County's use of biosolids. As noted therein, the proposed project dries the biosolids, reducing their weight and volume, in order to produce savings for the County of Maui. The County retains full control of the biosolids, and is free to manage them as it sees fit. While the proposed project is anticipated to result in a Class A fertilizer, safe for general use, the project does not depend upon the how the County uses the biosolids, nor does the project result in any commitment or other requirements for the County in pursuing its use or disposal options. Nevertheless, even though the project has "independent utility" and is not part of a larger project, the potential impacts have been assessed, therefore HAR § 11-200-7 has not been violated.

Response to M-8

Section 2.1.11 of the FEIS describes the anticipated visual impacts and mitigation measures. The proposed project would include construction of structures, including the anaerobic digester and its exhaust stack. Because, as the commenter points out, these structures will be visible, Section 2.1.11 of the FEIS has been revised to acknowledge that there will be some degree of visual impact, as depicted in the revised Figure 16.

However, it should be noted that there are similar structures in the vicinity of the proposed project, such as the industrial buildings along Amala Place closer to Kahului Harbor, Hawaii Gas' propane storage facilities, and Kahului Harbor facilities, which are also visible from Haleakala Highway, Hana Highway, and Amala Place. There are also structures related to Kahului Airport and associated jet fuel storage structures that are notable and visible from Hana Highway and the general vicinity. Section 2.1.11 of the FEIS has been revised to indicate that visual impact mitigation may include implementation of a site landscaping plan, choosing the best color scheme of structures, and blending the structures with the existing site infrastructure to the extent possible.

Response to M-9

The estimated quantity of NOx emissions is detailed in Appendix F, Air Quality, Odor, and Climate Change Impact Assessment. During this analysis, NOx and other criteria pollutants were modeled and compared with ambient air quality standards; even when added to current ambient air quality, ambient air under the operation of the proposed facility will continue to satisfy all relevant standards. Indeed, most pollutants are projected to be orders of magnitude below levels of concern. *See* Appendix F, Section 7.6. Therefore, while it is true that MECO has signaled the beginning of its plans to close the Kahului Power Plant with the recent publication of an EISPN, neither the DEIS nor the FEIS makes any NOx-related argument or other assertion based on the Kahalui power plant. Furthermore, should the proposed project go forward, air pollution control requirements will be further reviewed during permitting, which can only occur after acceptance of the FEIS.

Letter N – Letter from Charlotte O'Brien, Founder & CEO, Carbon Drawdown Solutions, dated February 6th, 2018.

CEO: Charlotte O'Brien
1 (808) 344-5339
charlotte@cdsbiochar.com
Carbon Drawdown Solutions, INC
P. O. Box 886, Haiku, HI 96708

CARBON DRAWDOWN SOLUTIONS

February 6, 2018

Maui All-Natural Alternative (MANA)
5870 Fleet Street, Suite 301
Carlsbad, California, 92008
Contact: Jeff Walsh

Dear Jeff,

As you may remember, Carbon Drawdown Solutions, Inc. was one of the respondents to the original RFP for waste to energy solutions for Maui County. Having gone through this process we are familiar with Anaergia's technology.

This letter is in reference to the DEIS for the MANA sludge drying project the Kahului WWTF, Kahului, Maui, HI.

1.The RFP was discriminatory from the outset because:

- It did not establish a need for converting Maui's dewatered sludge to bio-solids, allow for public comment or competitive bids
- If the COM wanted to replace MECO electricity with green fuels they should have said that and let companies like Pacific BioDiesel and the solar and wind companies compete against MANA rather than calling for proposals for gas turbines.
- It appears that the RFP was rigged in favor of its only respondent.

N-1

2. The Hawaiian State Government has made food security a top priority for the entire state yet this proposal calls for taking 500 of the most prime acres in the former sugarcane lands away from the potential of growing food for human consumption furthering our dependence on imported foods all in the name of offsetting fossil fuel emissions.

N-2

3. Despite the fact that food security should be of utmost importance, this project, if it were to proceed, would rob future tree food crops of the use of the currently produced EKO compost which is a reliable source of nutrients and microbes so needed to bring the soil of the sugarlands back to life.

N-3

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CARBON DRAWDOWN SOLUTIONS

4. Agricultural fields located above aquifers that are already polluted with agricultural chemicals should not be subjected to additional toxins from R2 water without that water first being run through a constructed wetlands. N-4

5. During his video-taped presentation of A and B's plans for the use of the former sugarlands Agricultural Director, Rick Volner stated: " *We are cautious. As you look around the world there aren't significant examples of projects that are fueled exclusively by commercially grown feedstocks or purpose grown crops. Many of the agricultural bio-energy plants around the world are actually supported by waste products - agricultural waste product. So, it's very difficult, at least currently, to look at the economics and have competitive or find comparable projects around the world. But, again, with most of agriculture a lot of the economics depend on the bi-products that you can produce or the co-products that you can produce not just the primary product. So, again, although a lot of work has already been completed and we have plans to continue, there still are significant questions on what the cost to produce agricultural bio-energy based power or energy on Maui are."* This would imply that if the County of Maui does go forward with this plan that they would be locking the citizens of Maui into a 20 year contract based on an experiment. According to Steve Apfelbaum, founder of Applied Ecological Services, a company who leads the field of carbon cycle testing, purpose grown bio-fuels do not pencil out from an energy balance point of view. N-5

6. MANA must be required to show an energy balance sheet including GHG emissions for all inputs needed to grow and process the sorghum intended for methane production. If producing "green fuel" takes as many fossil fuels to produce as the fossil fuels it is replacing then we are just robbing Peter to pay Paul while also reducing the amount of land available on Maui for food production. The energy needed to transport the food that could have been produced on those soils should also be put in the equation. N-6

7. The proper problem solving that is needed for our very complex waste to energy issues on Maui must be solved as a whole and not cherry picked to the detriment of the rest of the waste. Unless Anaergia can explain their vision for all of the waste to energy needs for Maui County and how this particular project fits into that vision they must not be allowed to syphon off the low hanging fruit and leave the County of Maui to figure out the rest. N-7

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CARBON DRAWDOWN SOLUTIONS

8. It is apparent that simply replacing MECO with methane turbines did not pencil out financially so Anaergia convinced the County that by also getting the tipping fees for the sludge (24,000 tons at $81/ton) that the project would be a go. This is no way to make an environmental decision and may create unintended consequences. N-8

9. What will we do with the often problematic bio-solids as I saw when I visited the Boston facility where they had repeated fires in their silos that required fire trucks to squelch. Like the Sand Island project Boston could not sell the product because of public repulsion. N-9

10. How can the County of Maui justify building new infra-structure with a 20 year lifetime in a tsunami zone when the sought after green energy can be produced by a combination of locally produced, waste derived bio diesel in pre-existing county owned generators, teethered wind energy and new off site PVs at a lower cost to the county? N-10

Thank you for allowing Carbon Drawdown Solutions, Inc. to offer comments.

Sincerely,

Charlotte O'Brien
President

Letter N – Response

Response to N-1

The County determined their project requirements, which included supplanting existing fossil fuel generated electricity at its WKWWRF with locally sourced, renewable energy for the community, while reducing wastewater sludge (biosolids) management costs. MANA responded to the County's public RFP process. All potential bidders had the opportunity to raise questions and provide recommendations during the RFP process, and the County of Maui confirmed that no bid protest was received during the public procurement for proposals. Other bidder's opinions about the RFP process are outside the scope of this EIS.

Response to N-2

The proposed project will not have any significant impact on Hawaii's food security. According to the Hawaii Department of Agriculture's STATEWIDE AGRICULTURAL LAND USE BASELINE STUDY 2015, agricultural land use in Hawaii has dropped from 350,830 acres in crop production in 1980 to 151,830 acres in 2015, leaving significant amounts of arable land available for crop production. *See* http://hdoa.hawaii.gov/blog/main/nrsalus2015/. More specifically, the closing of HC&S' plantation on Maui freed up approximately 38,800 acres, only 500 of which may be utilized for the proposed project. The percentage of arable land that may be utilized by the proposed project will not significantly impact Hawaii's food security.

Response to N-3

The proposed project will result in the production of a Class A soil amendment product, which will be turned over to the County for beneficial re-use. Thus, there will be no net decrease in nutrients. Additionally, as explained Response to Email Correspondence I, EKO is free to continue to compost greenwaste and other organic matter.

Response to N-4

Please see Response to M-3.

Response to N-5

Anaerobic digesters are not only designed for waste products, and renewable biofuel facilities such as the proposed project are increasingly being used throughout the world as an environmentally beneficial alternative to nonrenewable fossil fuels. For example, as of 2016 there are approximately 9,000 biogas plants in Germany with an installed capacity of 4,166 megawatts (MW) that operated on energy corps and manure feedstock. Anaergia has experience across the world in designing, building, and operating anaerobic digesters, including dozens of digesters that take in agricultural feedstock grown specifically for the purpose of digestion for energy generation. Anaergia has successfully installed and operated its technology in over 1600 anaerobic digestion facilities. Numerous publicly available reports also confirm that biogas has significant energy-generating potential. *See*, for example, the US Department of Energy's "Renewable Natural Gas Production" website, with links to studies and other information resources: https://www.afdc.energy.gov/fuels/natural_gas_renewable.html.

Response to N-6

Regarding GHG emissions, please see response to G-10. Appendix F to the FEIS contains a detailed GHG analysis that analyzes potential GHG emissions, providing far more detail than is required by any relevant authority. An energy balance for the project is part of the detailed economic analysis and process engineering for the project, and is beyond the scope of an EIS. Regarding food security, please see Response to N-2.

Response to N-7

Please note that the proposed project is not a waste to energy project, rather, it is a renewable biofuels project. Moreover, solutions for all of Maui's "very complex waste to energy issues" are beyond the scope of the proposed project, which does not curtail *any* of Maui's waste to energy options. The proposed project does, however, respond to the County's needs for this project, as described in Section 1.2 of the FEIS and the RFP, and as discussed in the Response to Letter B and Response to H-2.

Response N-8

MANA did not convince the County; MANA responded to the RFP based on the project needs, as described in Response to Letter B and Response to H-2.

Response N-9

While we do not know which "Boston facility" the commenter is referring to, or what its issues may be, please see Responses to O-5, O-6, and O-7.

Response N-10

Regarding the project purpose, please see Response to Letter B and Response to H-2; regarding the tsunami impacts and mitigation measures, please see Response to C-1; please also see Chapter 6 of the FEIS, which contains detailed analysis of alternatives, including biodiesel, solar and wind.

Letter O – Letter from Adriane Raff Corwin, Coordinator, Sierra Club Maui Group, dated February 7th, 2018.

SIERRA CLUB OF HAWAIʻI
MAUI GROUP

February 6, 2018

TO: Stewart Stant, Director, Maui County Department of Environmental Management

CC: Jeff Walsh, Maui All Natural Alternative, LLC (MANA);
Scott Glenn, Director, Hawai'i State Office of Environmental Quality Control

RE: Comments on Renewable energy conversion and sludge processing for the Wailuku - Kahului Wastewater Reclamation Facility (WKWWRF) Draft EIS

Aloha kākou,

Thank you for this opportunity to provide comments on the Draft Environmental Impact Statement submitted by MANA for its proposed renewable energy conversion and sludge processing facility at WKWWRF.

The Sierra Club Maui Group has heard from numerous community members about their concerns regarding this project. Some of our main concerns are as follows:

1. **Conflict of Interest:** In our comments on the EISPN, we stated, "Currently, the county is both the proposing agency and the accepting agency, which is a clear conflict of interest. Because the project will be built on state-owned land, we ask that a state agency be the accepting agency. This will resolve this conflict of interest." We did not find your response to this comment satisfactory. The Maui County Request for Proposal combined two needs (treat sludge, power the WKWWRF) into one project, making it nearly impossible for most to respond with a project proposal because it required experience in producing alternative energy sources and dealing with sludge. The County could have created separate RFPs for both needs, to see if there were potential projects that could satisfy each need with fewer costs to the county and fewer environmental risks. But instead the county made the RFP very narrow, which led to no one else submitting a proposal. During the public presentation given by MANA on January 24, 2018 in Kahului, it was clear from comments made by the Department of Environmental Management's Director Stewart Stant that the County is already behind this project. In fact, someone in the audience asked if the project was "a done deal," and the response was "Yes." Therefore, it is imperative that the Accepting Agency be a different agency than that of the Proposing Agency. The Accepting Agency should look at this project's FEIS without bias. Otherwise, the public will lose trust in the EIS process, as it gives off the appearance that the results have been rigged from the start. Currently, the results of this EIS process seem to have a foregone conclusion. O-1

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2. **Third Party Consultation:** With regards to our previous comment on requesting that this EIS be outsourced to a third party, we again did not find your response to this comment satisfactory. If MANA researches and writes its own FEIS, it is very unlikely that potentially serious concerns will be highlighted and examined and that feasible alternatives will be given fair consideration. If the EIS were to be evaluated by a non-partial state agency, then we would feel more comfortable that the FEIS, no matter who writes it, will be given due scrutiny. Because of our concern regarding conflict of interest, we are even more worried that the EIS being written by MANA will result in the community's concerns being ignored. O-2

3. **Odor:** The DEIS fails completely to analyze how odors from the facility will impact the surrounding area and environment. On page 41, the DEIS states, "Odor is inherently complex to quantify as it is comprised of a mixture of chemical substances and its intensity is associated with its perception by olfactory senses." Although the DEIS goes on to claim that the odors will be minimal, it fails to take into account that the waste material from Lāhainā plant is likely to be significantly more odiferous than the sludge streams from Kahului or Kīhei, which have undergone aerobic digestion. How will the delivery of over 60 tons per day of sludge affect the public's use of the adjacent and downwind bird sanctuary? And more importantly, how might the odors affect the animals living in that sanctuary? Will the chemicals, whether we can smell them or not, affect the birds and other species that reside there? Could the odors potentially cause the birds to leave altogether? In addition, how will it affect the people visiting Kanahā Beach Park? How will it affect the businesses nearby, along Kaʻahumanu and Hana Highway? How will it affect the cruise ship, which docks near-by once a week? The DEIS also states that, "The frequent trade winds in the area help to disperse odors." There are multiple scientific reports that have researched the connection between climate change impacts and the lessening of trade winds. Studies have shown Hawaiʻi is receiving fewer and fewer trade winds each year, and this may worsen as climate change worsens. During those times when the winds are light or non-existent, what will downtown Kahului smell like? What mitigation plans will MANA have in place so that if people with average olfactory senses notice the smell, it can be swiftly dealt with? O-3

4. **Public Health:** According to the DEIS, emissions of "nitrogen dioxide (NO2), carbon monoxide (CO), sulfur dioxide (SO2), particulate matter with an aerodynamic diameter of 10 microns or less (PM10), particulate matter with an aerodynamic diameter of 2.5 microns or less (PM2.5), and lead (Pb)" will be emitted into the air from the smokestack. Many of these are linked to asthma and respiratory ailments. While the DEIS states that emissions will be within legally allowable levels, they will be emitted right over Kahului, with standard wind patterns blowing them into Central Maui. How might this increase in emissions, and right over a highly populated area, potentially increase rates of asthma in children and respiratory ailments in Maui's population? How might 20 years of exposure to these levels impact the health of our citizens? As stated in the DEIS, the Kahului Air O-4

Monitoring Station, the closest station at 3 miles away from the MANA site, currently can only measure concentrations of PM2.5, wind direction, and wind speed. Until the Kahului station is able to monitor CO, NO2, and SO2 levels as well, how will MANA test to ensure levels emitted are not too high? O-4

5. **Stockpiling of Biosolid Product:** At the January 24th meeting, the presenters stated that there are currently no set plans for how to deal with the 3,200 tons per year of biosolid, but the DEIS states, "This material is more marketable, and is therefore less likely to be stockpiled." Less likely is not a guarantee. There are reports from across the USA of people's bad experiences with biosolids, both Grade A and Grade B. If the Maui public does not want to use the biosolids and there are stockpiles, how will the county and Anaergia handle them? If the unused product is disposed of in the landfill, how will this impact our future limited space for landfill? O-5

6. **Testing of Biosolid Product:** According to the EPA, our sludge is only monitored for unacceptable levels of fecal coliforms and nine heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, selenium and zinc). Yet an EPA study that tested sludge samples from around the country found 27 other metals, pharmaceuticals, anions, steroids, and toxic flame-retardants in nearly every sample. Our sludge will be made immensely dense due to the drying process, ensuring higher levels of these are in each piece of biosolid. What are the possible impacts on Maui's environment and human health if 3,200 tons of this are spread in our parks and on our agricultural lands? What are the long term effects of spreading this on Maui lands for 20 years? What testing will be done to ensure that any biosolids that may be used as fertilizer in public parks and on agricultural lands don't contain high levels of these other substances? Will randomized studies be done on a regular basis and this information given to the public regarding the content of the biosolid? O-6

7. **Impact on Reefs and Endangered Species:** The MANA digester itself might not have an impact on any endangered species (although this may not be true, as we do not know the impacts it will have on endangered birds living in Kanahā, etc.), but the biosolid product produced at the digester may be, according to Stant at the January 24th meeting, given to the Parks department to use around the island. Or it might be sold or given to farmers. Although the DEM doesn't yet know what it will do with the biosolid product, it is clear that there are plans for the product to be disseminated around the island. How might this impact endangered species living on or near where the biosolids are spread? How might the dissemination of a product with extremely dense nitrogen affect our reefs when runoff occurs? How does the current fertilizer used by the Parks department compare to the biosolids from MANA in terms of environmental and health impacts? A large part of this project's impact will be how the biosolids are used, but this issue is ignored in the current DEIS. O-7

8. **Green Waste:** Because the county will be diverting the sludge to MANA, what will be done with the county's green waste? O-8

9. **Alternative Projects:** Alternatives to this project have not been adequately evaluated, although such evaluation of alternatives is required by HRS 343-5(a)(1). Alternatives that will have less impact on the environment but are less cost effective are required as part of this alternatives analysis. This should include projects that deal with sludge and provide power to WKWWRF separately but have less impact on our health and environment. O-9

10. **Public Utility:** Via this project, MANA will be selling power to the County of Maui and, from our understanding, will therefore fit the definition of a Public Utilities company. Is this true, and if so, has MANA submitted an application to the Public Utilities Commission? If its application is rejected, what will MANA do? O-10

We are also including verbatim some points brought up by Maui Tomorrow, as we are very concerned about these issues as well:

11. **Wastewater Use:** The EIS needs to discuss plans to store the wastewater in rainy conditions, which might last for a week or more in various seasons. Applying high nitrogen content wastewater to former sugar cane land like this raises questions about where the nitrogen goes once the soil has reached its practical carrying capacity for the material. The applicant needs to study the geology of the area for land application and determine where the material will end up. At the present time, residents of Upcountry Maui are being told that they will need to upgrade cesspools because of high nitrogen levels polluting ground water; the Applicant also needs to address this issue. O-11

12. **Segmentation:** At the public information meeting of January 24, 2018, DEM Director Stant claimed that bringing 4.4 mgd of R-2 water to irrigate 500 acres of former sugar cane land is a separate project, and that the disposal of the wastewater is "not part of this EIS". However, HAR Sec. 11- 200-7 provides that "a group of actions proposed by an agency or an applicant shall be treated as a single action when: A. The component actions are phases or increments of a larger total undertaking." Failure to address the impacts of R-2 irrigation on the 500 acres of former sugar cane land would constitute improper segmentation of one project into components falsely claimed to be unrelated. O-12

13. **Tsunami Zone Mitigation:** The new digester and methane-fueled burners will be located in the hazard zones for tsunamis and sea level rise. The county has argued that all the risks of a flooding disaster will be borne by MANA and not the county, but this promise addresses only the financial risk. If a large tsunami overwhelms the new facility, there would be human waste spread over much of the low lying areas of Kahului. The draft EIS ignores this health risk. It is not in compliance with HAR 11-200-12(K) , which requires O-13

an evaluation of any damage that may occur from being located in such hazard zones. O-13

14. **Fire Hazards:** The project will entail storage of flammable gas and nitrogen-rich sludge, each of which poses a fire and explosion hazard. The EIS needs to adequately evaluate these risks, or it will be in violation of HAR 11-200-12(D) ("substantially affects the economic or social welfare of the community"). It is also a waste of everyone's time to focus on the environmental issues of this proposed project when the County Council has never vetted or approved the Power Purchase Agreement, the sludge drying agreement, the agreement with A&B to sell it millions of gallons of irrigation water, nor the agreement with the state airport authority to increase the diameter of a wastewater pipe running under the airport to handle the water being sold to A&B. Until the County Council approves all these contracts, this EIS exercise is premature. O-14

15. **Obstruction of Views:** The height of the digester is at least 60', while the emissions stack is planned at 59'. The large digester orb will clearly be visible for those driving down Haleakala Hwy, and will obstruct shoreline views in the immediate area. On page 36 of the DEIS, it says: "The proposed project is designed to cover less than an acre of property, with structures generally less than 70 feet in height above grade and with an exhaust stack of 59 feet in height." The following page 37 shows existing photos of the W-KWWTF. Then on pages 121 and 122 (of the document, not the pdf) in the preliminary site renderings of the site and new buildings, and in the site diagram rendering on page 165, the digester looms large above existing buildings at the site. The applicant needs to provide a side-by-side comparison of their renderings and the perspective of the page 37 photos to determine real visual impacts. The applicant's statement on page 36 that the shoreline view is currently obscured by ironwood trees and shrubbery, and that the new buildings would "blend into the industrial landscape of the immediate vicinity" is simply not true: these new buildings would be the tallest structures on Amala Place, and would be visible from many miles away. The failure to evaluate such issues is a violation of HAR 11- 200-12(L). O-15

16. **NOx Emissions:** The EIS needs to evaluate the net quantity of emissions of NOx that will be added to the Kahului air over the next few decades, relative to existing conditions and known plans for other emission sources. In the section of the DEIS analyzing air emissions, the applicant argues that its emissions will be less than the nearby Kahului Power Plant, where units date back to 1947. The EIS needs to acknowledge and discuss the fact that MECO has committed to close the Kahului Power Plant in the next few years. Not only is the DEIS comparison inherently misleading, but the reasons why the utility will be abandoning this location as a power plant need to be discussed (tsunami zone, road flooding, nearby bird sanctuary, and being upwind of a population center); these same issues apply to the proposed project location - a few hundred yards away - where the applicant wants to erect a 60 foot tall facility with a 59 foot tall stack. O-16

We would like to continue to be listed as a concerned party and receive updates on this project moving forward. Mahalo again for this opportunity to provide comments.

Aloha,

Adriane Raff Corwin,
Coordinator, Sierra Club Maui Group

Letter O – Response

Response to O-1:

As reflected in the Project Summary preceding the Table of Contents of both the DEIS and the FEIS, MANA is the applicant, and the County of Maui DEM is the accepting authority. (This is discussed in more detail in Response to M-1, above.) Thus, MANA has prepared this EIS, and Maui DEM is the accepting authority, performing its duties as required by HRS § 343-5(e) and HAR § 11-200-4(b), among other provisions. Both MANA and Maui DEM are involved in the EIS process, as required by Hawaii law, and there is no "conflict of interest." As can be verified by browsing the OEQC's online database of EISs, it is common for both accepting agencies and applicants to be involved in the applicant's EIS process—this is not a "conflict," rather, this is by design—both parties are required by law to ensure compliance with HRS Chapter 343. For example, Maui DEM is *required* to be sufficiently involved in MANA's EIS process in order to ensure satisfactory completion of procedural and substantive requirements, such as the proper consideration of, and satisfactory responses to, comments received. *See, e.g.*, HAR § 11-200-23(b).

Relatedly, because the State of Hawaii Department of Land and Natural Resources-Office of Conservation and Coastal Lands (OCCL) may also grant project approval, due to its location in the conservation district (i.e., CDUA), the County of Maui contacted OCCL regarding the appropriate accepting authority for the EIS, in accordance with HAR § 11-200-4(b). In a letter dated August 11th, 2017 the County requested OCCL's concurrence that the County is the appropriate accepting authority for the project. OCCL responded in a letter to the County, dated September 14th, concurring that the County is the accepting agency for the FEIS. The Mayor of Maui delegated his authority to the DEM. *See* Appendix B to the FEIS.

Note that these exact same considerations and conclusions were made in a previous recent project at the site, when the County finalized its decision to upgrade the site tsunami protection features. *See* FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED SHORELINE PROTECTION EXTENSION AT WAILUKU-KAHULUI WASTEWATER RECLAMATION FACILITY, which described the same considerations and consultations, and was properly accepted in April, 2013.

Response to O-2

The FEIS has been prepared in accordance with all applicable law, and local ("third party") consultants with specialized knowledge of particular fields have been used where appropriate. Throughout the EIS process MANA has conferred with other third parties, including the County, consultants, and stakeholders. Pertinent advice and feedback regarding design, location, environmental, engineering, and other considerations have been incorporated in the FEIS as appropriate. A thorough analysis of alternatives to the proposed project was also conducted, taking into account scoping meetings and comments received. With respect to the conflict of interest concern, please see Response to O-1.

Response to O-3

As described in Section 2.1.14 of the FEIS, the organic decomposition of wastewater produces compounds such as hydrogen sulfide and ammonia that result in odors. Section 8 of

Appendix F contains a detailed analysis of potential odor impacts, confirming that odors will be generated, but the proposed project is located at an existing wastewater treatment facility that generates these same odors. Odor impacts to the pond are also expected to be insignificant compared to the background odors of the WKWWRF and other nearby facilities, as well as the pond itself, which frequently emits similar odors when water levels are low and fish are dying. Despite these existing odors at the pond, which, unlike odors from the proposed project, do reach nuisance levels, as noted in Appendix C of the FEIS, the birds continue to utilize the wetland and pond. Therefore, no significant impacts to the pond or other nearby areas are anticipated. Odors will dissipate in areas further from the project, and should not reach levels that would be considered a nuisance. Because any purported effects of climate change upon the tradewinds are been well-established, they cannot be evaluated in detail at this point; nevertheless, the detailed analysis in Appendix F concludes that a significant increase in nuisance odors is not anticipated even in close vicinity to the proposed project, therefore hypothetical changes in wind patterns would not change the conclusions.

Section 2.1.14 of the FEIS has been revised to confirm that odor impacts will be mitigated by: treating the sludge in equipment, maintained at negative pressure in order to minimize the escape of odors; using enclosed processes to minimize the escape of particles; and routing all process exhaust through the wet exhaust scrubber prior to exiting the stack. Mitigation measures are expected to keep the odor levels within the voluntary design criteria of 3 “odor units,” as explained in Appendix F. The strongest impacts would be limited to nearby properties with industrial operations that have their own odor impacts. Section 2.1.14 has also been revised to confirm that MANA will develop mitigation plans and Standard Operating Procedures (SOPs) to address reports of unacceptable odor, subject to approval by the County of Maui. These plans will be implemented prior to the commercial operation of the project.

Response to O-4

Appendix F of the FEIS provides a detailed analysis of anticipated air impacts, and Section 2.1.14 discusses anticipated air quality impacts and mitigation measures. Overall, air quality is expected to improve, based on generating power for the WKWWRF from a much cleaner renewable natural gas (biogas) then the existing fossil fuel base power presently supplying the facility. As described in Chapter 10 of the FEIS, the project will require a Non-Covered Source Air Permit, which will require emission testing including CO, SO2, PM10 and PM2.5 in accordance with the State of Hawaii, Clean Air Branch annual emission testing standards. These standards have been developed by the regulatory agencies to ensure protection of human health, taking into account conservative exposure scenarios.

Responses to O-5, O-6, and O-7 (biosolids)

Comments O-5, O-6, and O-7 raise several questions related to the use and management of the biosolids. As a preliminary matter, as described in the Section 1.4 of the FEIS, the proposed project will use the waste heat from energy generation to perform the service of drying the biosolids, which will be returned to the County of Maui for their use, significantly reducing their handling and transportation costs. The finished product would be a Class A fertilizer, conforming to all state and federal requirements for land application. However, the proposed project is not tied to the County’s end use of the biosolids, and will not restrict the County’s abilities to manage the biosolids as they see fit. While the County currently anticipates using the

biosolids as a soil amendment, its use of the product is not restricted by or tied to the current project. Rather, the proposed project significantly decreases the weight and volume of biosolids, resulting in significant cost savings for the County. See Response to M-7.

As indicated in Section 6.4.2 of the FEIS, the proposed project is expected to significantly decrease the amount and duration of stockpiling of biosolids. Moreover, stockpiling would occur within newly-constructed bins and silos, as depicted in Appendix A, reducing the potential for spreading or other adverse impacts.

Should the County pursue land application, that use is regulated under the Clean Water Act regulations at 40 CFR Part 503, and related state requirements for testing, such as those in HAR Title 11, Chapter 62, Subchapter 4, "Wastewater Sludge Use and Disposal." The DOH Wastewater Branch has the authority to oversee that use, including determining the specific biosolids testing requirements that will ensure their safe use, as it has for some time for the similar biosolids program that is successfully operated by City and County of Honolulu. Generally, biosolids will be tested prior to use to ensure that pollutants and pathogens do not exceed regulatory limits, and to ensure prevention of vector attraction. At a minimum, the County would use the detailed sampling and analysis requirements described in the federal regulations at 40 C.F.R. § 503.8, "Sampling and analysis." These testing requirements will ensure that the biosolids are no more detrimental, and have no greater environmental impacts, than the fertilizers they replace, if any. The County of Maui is currently in preliminary discussions with the Department of Health to determine the precise parameters and monitoring requirements, which are anticipated to ensure that the biosolids meet all of the most stringent, "Class A" requirements defined in 40 C.F.R. § 503.32.

Section 6.4.2 of the FEIS describes how the County would apply the biosolids as a soil amendment; Section 4 has been revised to acknowledge potential secondary impacts due to drying Maui County's biosolids, which are not expected to be significant. Because the biosolids have a much lower moisture content and a higher surface area per volume compared to compost or other fertilizer, and are typically land-applied in thin layers (e.g., as landscaping ground cover), the biosolids are less prone to erosion and much more amenable to aerobic decomposition. As a result, there is a decreased potential for erosion, such that impacts to the reefs and endangered species, if any, are expected to decrease compared to the status quo. Furthermore, using the biosolids as soil amendments would have the overall benefit of promoting decomposition to CO_2 compared to current practices, such that less methane is produced, providing GHG reduction due to the significant difference in the global warming potential of the two gases.

The presenters at the public meeting noted that there are many examples of long-term successful bio-solids program, such as those operated by the City and County of Honolulu, Department of Environmental Services, without significant negative impacts. The Sand Island WWTP in Honolulu currently produces permitted Class A biosolids that are used by a private horticultural operation on Oahu. As requested by some members of the public, additional national references including information regarding land application, sources, quality, quantity and the lack of negative impacts to public health can be obtained from the following organizations:

- Northwest Biosolids Organization: Website https://nwbiosolids.org/. The organization is advancing environmental sustainability through the beneficial use of biosolids with successful projects currently in operation in Washington State, Oregon and British Columbia, Canada.
- Mid Atlantic Biosolids Association. Website https://www.mabiosolids.org/. The organization is comprised of 150 organizations in the mid-Atlantic region advocating biosolids as valuable community resources.
- North East Website. https://www.nebiosolids.org/. The organization is a non- profit professional association advancing sound environmentally practices of the recycling of biosolids in the New England, New York and Eastern Canada regions.

It is also noted that the proposed project would use the same biosolids from the three County WRFs that have been added to compost on Maui since 1995, without any known detrimental effects.

As stated in Section 1.4 of the FEIS, landfilling would remain an option for the County, but that is only expected to be used as a last resort. That end use would be subject to DOH Solid Waste requirements, which have been established to ensure public safety. Therefore, no impact to public health would be expected. As to landfill space, even if the County were to decide to landfill some of the biosolids, considering the worst case scenario, wherein all of the biosolids were landfilled (which is not anticipated), the 3,200 tons per year of biosolids is less than 1% of the waste landfilled in Central Maui Landfill. Therefore, landfilling some of the biosolids would result in a negligible impact on the County's available landfill space.

Response to O-8

Please see Response to Email Correspondence I.

Response to O-9

Chapter 6 of the FEIS evaluates a variety of alternatives, including but not limited to alternatives with less impact on the environment, less cost-effective alternatives, and alternatives that deal with sludge and provide power to WKWWRF separately. Cost, although considered, was not the focus of this alternative analysis, which evaluated environmental and related impacts, such as how the alternatives would satisfy the renewable energy goal of the project, sludge processing requirements, the available project footprint, cost certainty and other relevant economic factors, air quality, GHG considerations, and other relevant factors. Chapter 6 of the FEIS provides sufficient detail for each alternative to complete a comparative evaluation of the proposed action and each reasonable alternative, satisfying the requirements of HRS 343 and HAR 11-200. Chapter 6 has been revised to describe in more detail the screening process used in considering potential alternatives, and to categorize the alternatives retained for analysis.

Response to O-10

The proposed project would not result in a Public Utility. *See* HRS, Chapter 269. Mana expects to execute a Standard Interconnection Agreement with MECO, within the frame work of the State of Hawaii Utility Rule 14 H.

Response to O-11:

Please see Response to G-7.

Response to O-12

Please see Response to M-3.

Response to O-13

Please see Response to C-1.

Response to O-14

With respect to fire hazards, please see Response to M-5.

Regarding the comment that this EIS is premature, this statement contradicts HRS Chapter 343, which requires environmental review at the earliest practicable time. On this basis alone, there is no reason to delay this environmental review. Furthermore, contrary to the assertions in this comment, as described in Section 1.3 of the FEIS, MANA and DEM have agreed upon a service agreement for power and sludge drying, and the County Council has approved the lease for the project subject to satisfactory completing of the project's environmental review and permitting. *See* FEIS Appendix I.

With respect to irrigation water, please see Response to M-5, which confirms that the proposed project does not involve irrigation water. The project also does not involve an agreement with the airport to increase the diameter of a wastewater pipe.

Response to O-15

Please see Response to M-8.

Response to O-16

Please see Response to M-9.

Letter P – Letter from David M. Robichaux, Principle, North Shore Consultants, dated February 8th, 2018.

NORTH SHORE CONSULTANTS, LLC

Mr. Stuart Stant, Director
Dept. of Environmental Management,
County of Maui
2050 Main Street, Suite 2B
Wailuku, HI 96793

February 6, 2018

DEM	INFO	ACTION
DIRECTOR		
DEPUTY		
PERS		
WWR		
SW		
EP&S		
SECTY		

SUBJECT: Comments for Draft Environmental Impact Statement for the Renewable Energy Conversion and Sludge Processing at the Wailuku-Kahului Wastewater Reclamation Facility ("WKWWRF")

TMK(s) (2) 3-8-001:188 (portion)

Dear Mr. Stuart Stant:

The following are comments for the draft environmental impact statement for the Renewable Energy Conversion and Sludge Processing for the Wailuku-Kahului Wastewater Reclamation Facility situated at (2) 3-8-001:188 (portion) in the Wailuku District on the island of Maui.

It is understood that the proposed project is designed to produce renewable energy and heat for drying of all the municipally-generated wastewater bio-solids produced on the Island of Maui.

This letter documents our serious concern for the overall feasibility of the proposed development as well as significant long term negative economic impact to the residents of the County of Maui.

1. In Chapter 2, on page 15, the DEIS states:

   "*Digestate will be applied to the fields in agriculturally appropriate amounts consistent with a nutrient management plan developed for the project and in compliance with conditions of any required approvals from the State Department of Health (DOH).*"

According to the Department of Health, there are no such "appropriate amounts" of digestate, and there are no means of compliance or approval. In fact, the opposite is true. As indicated in Chapter 9, on page 106, DOH does not approve of the proposed land application of digestate: P-1

"*In addition, the Department of Health, Wastewater Branch will not allow the untreated liquid digestate removed from the anaerobic digester by Central Maui Feedstocks LLC to be land applied. In accordance with Hawaii Administrative Rules (HAR), Chapter 11-62, Wastewater Systems, the digestate will need to be dewatered at the Kahului Reclamation Facility, similar to the processing of wastewater sludge.*"

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The position of the DOH is clear and unequivocal. It does not support the direct application of digestate. As indicated, this is an unresolved issue that has the potential to impact the feasibility of the project by adding additional cost and complexity to the operations and facility design. The Department of Health has based its opinion on the potential risk to groundwater supplies and ultimately the health of our community

P-1

2. In Chapter 3, on page 81, under the heading of "Liquid and Solid Waste" the report acknowledges that the County's objective is to:

   "*Reduce the disposal of solid waste in landfills through reducing the amount of material for disposal at the source (i.e. home composting of lawn or tree trimmings), reuse and recycling programs, bioconversion (i.e. composting) and the provision of convenient drop-off facilities.*"

   Also, on page 81, the report states:

   "*The primary basis for the project is to utilize organic materials (energy crops) as a feedstock for firm, renewable energy and to reduce the volume of wastewater sludge.*"

It is well known that the applicant, operating under corporate name "Maui Resource Recovery Facility, LLC" executed a Services Agreement with the County of Maui on January 8, 2014 to provide similar services to process waste material (including the wastewater sludge) received at the Central Maui Landfill to generate renewable energy. The applicant has neither satisfied their obligations under the contract, nor have they fulfilled their original responsibility to the County to reduce the disposal of solid waste going to the landfill. Accordingly, the project feasibility is in question since the applicant has not successfully performed the similar scope of work required under their original contract. It has been almost 5 years since the County awarded the Integrated Waste Conversion and Energy Project to the Applicant, and just over 4 years since the County executed the Services Agreement with the Applicant. In our view, which is supported by the facts and contract, the Applicant has taken no meaningful steps in the direction of development. As a result of this inactivity, the applicant must be required fulfill its current contract with the County, before any new contract is provided for similar services to accommodate the applicant.

P-2

3. In Chapter 6, on page 91, the DEIS states:

   "*The proposed action provides fixed charges for electrical generation and sludge processing, escalating at 2.2 percent annually."*

It is understood that the proposed price for renewable energy that the applicant will charge the

P-3

County is $0.29/kWh. When you factor in the annual escalation over the proposed 20-year term, the cost of energy will increase to over $0.33/kWh by year 7 and over $0.40/kWh by year 16.

In Chapter 1, on page 6, the report states:

"*The DEM expressed a desire for budget price certainty and predictability as the variability of annual electrical purchase from the utility has fluctuated between 22 cents to 35 cents per kilowatt-hour (kWh) over the last decade.*"

The proposed project will significantly increase the price/kWh that the County currently pays and will continue to outpace the existing incremental cost paid by the County for electricity. This makes no sense for the County or the community. While we wholeheartedly support the IWCEP initiative to reduce the amount of waste going to the Landfill, and the corresponding production of alternative energy, the environmental benefits must be balanced with the costs. P-3

Before you go down this new path, please consider returning to the original goals established in the IWCEP and memorialized in the services agreement between the County and the Applicant. They were beneficial to the County, the Community and the Environment. This new proposed project subordinates the objectives of the IWCEP and only benefits the Applicant.

Thank you for the opportunity to provide comments on the subject project. We look forward to your response to our concerns and reserve the right to make additional comments in the future.

Sincerely,

NORTH SHORE CONSULTANTS, LLC
David M. Robichaux, Principal

CC: Jeff Walsh, Applicant: Maui All Natural Alternative, LLC

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Honolulu, HI 96822

robichaud001@hawaii.rr.com

Letter P – Response

Response to P-1

Since the publication of the DEIS, and after further consideration, the DOH has concluded that land application of digestate may be acceptable as long as the County commits to assist in the proper monitoring of the land application, pursuant to an agreement with the DOH. *See* Letter Q and Response to Letter Q, below. MANA and the County are committed to developing an appropriate system of monitoring and controls and committing appropriate resources, in satisfaction of DOH requirements. Section 2.1 and Chapter 9 of the DEIS has been revised to reflect this development, and state that land application will only proceed with the concurrence of the DOH.

Response to P-2

This comment regarding the contract for an unrelated project does not raise any issues relevant to the EIS for the proposed project.

Response to P-3

Regarding costs, please see Response to B-4.

The proposed project is not related to the Integrated Waste Conversion and Energy Project; please see Response to P-2, above.

Letter Q – Letter from State of Hawaii, Wastewater Branch, Department of Health, dated February 9th, 2018.

DAVID Y. IGE
GOVERNOR OF HAWAII

VIRGINIA PRESSLER, M.D.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

February 9, 2018

Mr. Jeff Walsh
MANA
Maui All Natural Alternative
5870 Fleet Street Suite 301
Carlsbad, California 92008
Email: jeff.walsh@anaergia.com

Dear Mr. Walsh:

Subject: Draft Environmental Impact Statement
Renewable Energy Conversion and Sludge Processing for the Wailuku – Kahului Wastewater Reclamation Facility (WKWWRF)
281 Amala Place, Kahului, Wailuku, Maui 96793
TMK (2) 3-8-001: 188

Thank you for allowing us the opportunity to provide comments for the subject project's DEIS. The Department of Health, Wastewater Branch (DOH-WWB) does not have the resources to properly monitor the land application of the digestate. The DOH-WWB is concern because the improper land application of the digestate could lead in water pollution issues, contamination of groundwaters and surface waters.

The DOH-WWB would consider supporting the project if there is a commitment by the County of Maui's Department of Environmental Management (DEM) in the form of a Memorandum of Agreement to assist with the operation and monitoring compliance oversight of the land application of the digestate.

Should you have any questions, please call Mr. Mark Tomomitsu of our office at (808) 586-4294.

Sincerely,

SINA PRUDER, P.E., CHIEF
Wastewater Branch

LM:sp

c: Ms. Laura McIntyre, DOH-EPO, EPO 18-255, via email
Mr. Roland Tejano, DOH-WWB's Maui Staff, via email
Mr. Stewart Stant, Director, C/Maui, via mail

Letter Q – Response

MANA and the County are committed to developing an appropriate system of monitoring and controls and committing appropriate resources, in satisfaction of the requirements reflected in this letter from the DOH's Wastewater Branch. Section 2.1.1 and Chapter 9 of the DEIS have been revised to reflect this requirement and confirm that land application of digestate will only proceed with the concurrence of the DOH.