



AEMETIS

Aemetis Advanced Products Riverbank, Inc.
www.aemetis.com

5300 Claus Road #5
Modesto, CA 95357
209-863-0959

Riverbank Army Ammunition Plant Specific Plan

**Addendum to the
Final Environmental Impact Report
State Clearinghouse #2011022015**

**Aemetis Advanced Products Riverbank, Inc.
Carbon Zero 1 Project
Riverbank Industrial Complex
Riverbank, CA**

**CEQA Lead Agency
City of Riverbank
6707 Third Street
Riverbank CA 95367**

**Prepared By
Trinity Consultants, Inc.
20 Corporate Drive, Suite 285
Irvine CA 92606**

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1. EXECUTIVE SUMMARY

Aemetis Advanced Products Riverbank, Inc. (“Aemetis”) plans to build a sustainable aviation fuel (SAF) and renewable diesel (RD) production plant, referred to as the “Carbon Zero 1 Project” (the “Facility”) at the Riverbank Industrial Complex (“RIC”). Designed to be a “green business,” the Facility will produce 120 million gallons per year of low carbon intensity SAF and RD from 475,000 gallons per day of vegetable oils and animal fats. The production of low-carbon fuels produced from renewable sources will help reduce total carbon emissions to the atmosphere.

The RIC is a 140 acre site of a former U.S. Army ammunition production plant referred to as the Riverbank Army Ammunition Plant (“RAAP”). It is in the process of being converted to private use under management by the City of Riverbank, California (the “City”) and Aemetis Properties Riverbank, Inc. as master developer. About one-half of the RIC is a heavily industrialized area that was used by the Army. The other half of the RIC is undeveloped open land that the City’s applicable re-use plan expects to be completely built out with new industrial/business park uses. Aemetis’ Facility would be located on approximately 29 acres of the RIC in the open space between the existing industrialized area and the Hetch Hetchy power lines.

The City prepared and certified an Environmental Impact Report (“Specific Plan EIR” or “EIR”) under the California Environmental Quality Act (“CEQA”) when it adopted a Specific Plan that modified the zoning for the RIC and described the City’s plan for reuse and development. The EIR analyzes the impacts of the zoning changes at the RAAP Site and also analyzes the impacts of the individual projects expected to be built as part of the reuse of the site, including projects in both the existing industrial area and in the undeveloped open space. The EIR applies to Aemetis’ Facility, which would be built within the area subject to the Specific Plan.

The purpose of this Addendum is to describe the facility and its impacts and to analyze them in the context of the Specific Plan EIR. As a general matter, once an EIR has been certified for proposed project, “no subsequent EIR shall be prepared” unless specific criteria in Section 15162 of the CEQA Guidelines are met. (CEQA Guidelines Section 15162(a).) Those criteria would require additional CEQA analysis only if (i) there are substantial changes to a project or circumstances, or substantial new information, and (ii) those changes require major revisions to the EIR, due to (iii) new significant adverse impacts caused by the change that were not previously analyzed.

This Addendum applies the Section 15162 standard to each significance threshold that is normally included within a CEQA checklist. Based on the analysis provided below and in the Specific Plan EIR, the Facility does not include changes from the Specific Plan that would require major changes to the existing EIR due to new significant adverse environmental effects over those determined by the City in the Specific Plan EIR. Based on this, CEQA states the “lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions [to the EIR] are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.” *CEQA Guidelines Section 15164(a)*. In additions, “[t]he decision-making body shall consider the addendum with the final EIR or adopted negative declaration prior to making a decision on the project.” *CEQA Guidelines Section 15164(d)*.

2. PROJECT DESCRIPTION

2.1 Introduction

Aemetis plans to build a sustainable aviation fuel (SAF) and renewable diesel (RD) production plant, referred to as the “Carbon Zero 1 Project,” or the “Facility.” The Facility will be located at 5300 Claus Road, Riverbank, California 95357, at the Riverbank Industrial Complex (RIC) (the former RAAP site). It will produce 120 million gallons per year of low carbon intensity SAF and RD from 475,000 gallons per day of vegetable oils and animal fats. The Carbon Zero 1 Project has the following key objectives:

- ▶ **Produce low carbon fuel.** The SAF and RD produced by the Facility will have a low “carbon intensity” under California’s Low Carbon Fuel Standard, which will reduce greenhouse gas emissions from transportation fuels used in the state.
- ▶ **Support the implementation of the federal Renewable Fuels Standard (RFS).** The SAF and RD produced by the Facility will be considered an advanced biofuel under the federal RFS and help achieve the RFS mandates for production of renewable fuels.
- ▶ **Economic Development.** The Facility will support economic redevelopment and job growth at the former army base in the City of Riverbank.

2.2 Project Location

Aemetis’ Carbon Zero 1 Project will be located on approximately 29 acres within a mostly undeveloped portion of the RIC. Figure 1 shows the RIC parcel designations. Figure 2 shows the regional and site location. Figures 3 and 4 show the location of the Aemetis’ Facility within the RIC. The Facility will be primarily located south of the Hetch Hetchy aqueduct and power lines, north of the former army base developed industrial area with entrances along Claus Road.

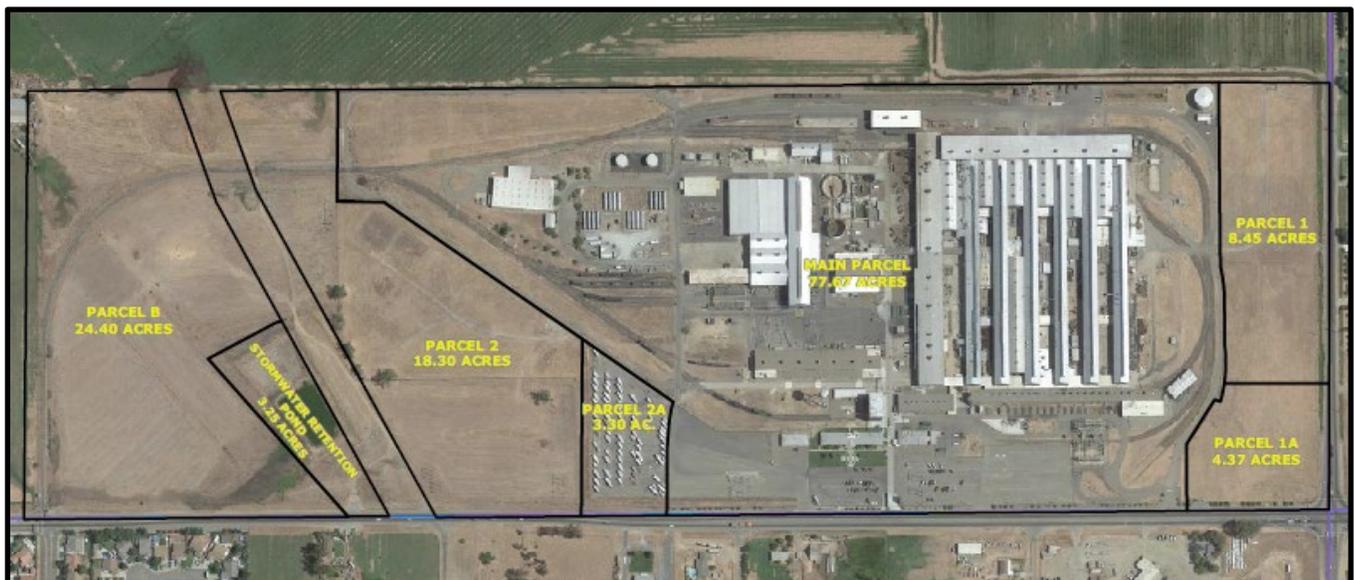


Figure 1 RIC Parcel Map

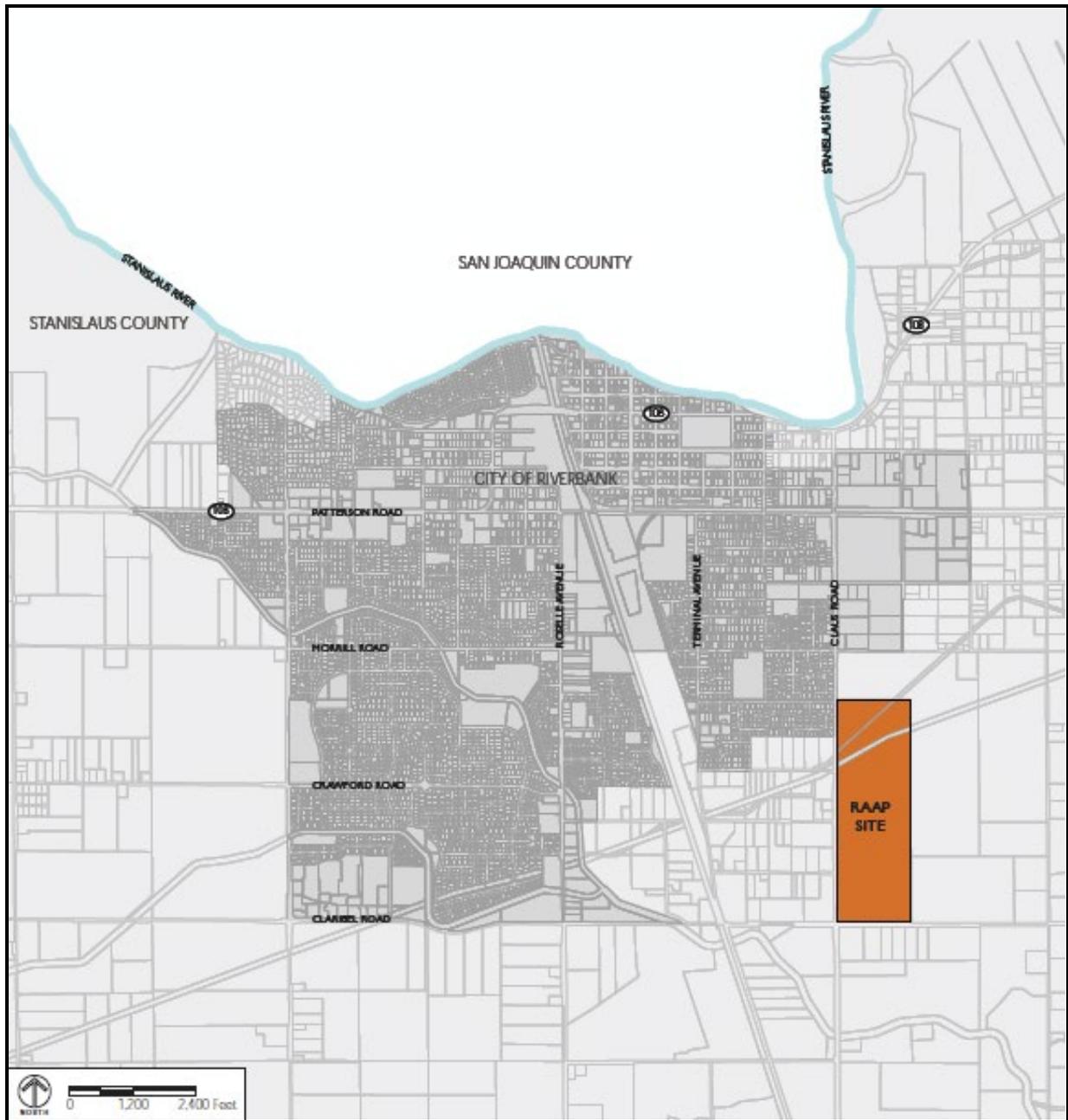


Figure 2 Regional Location

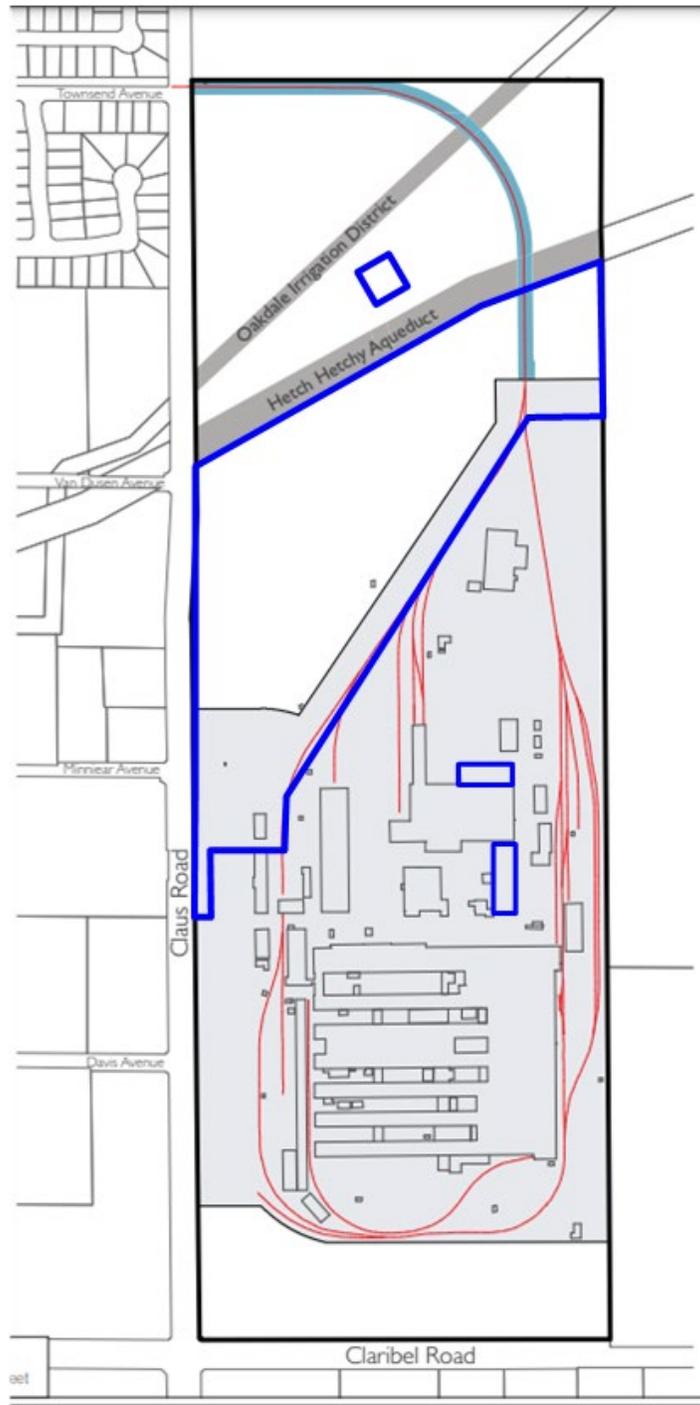


Figure 3 Facility Location Within RIC

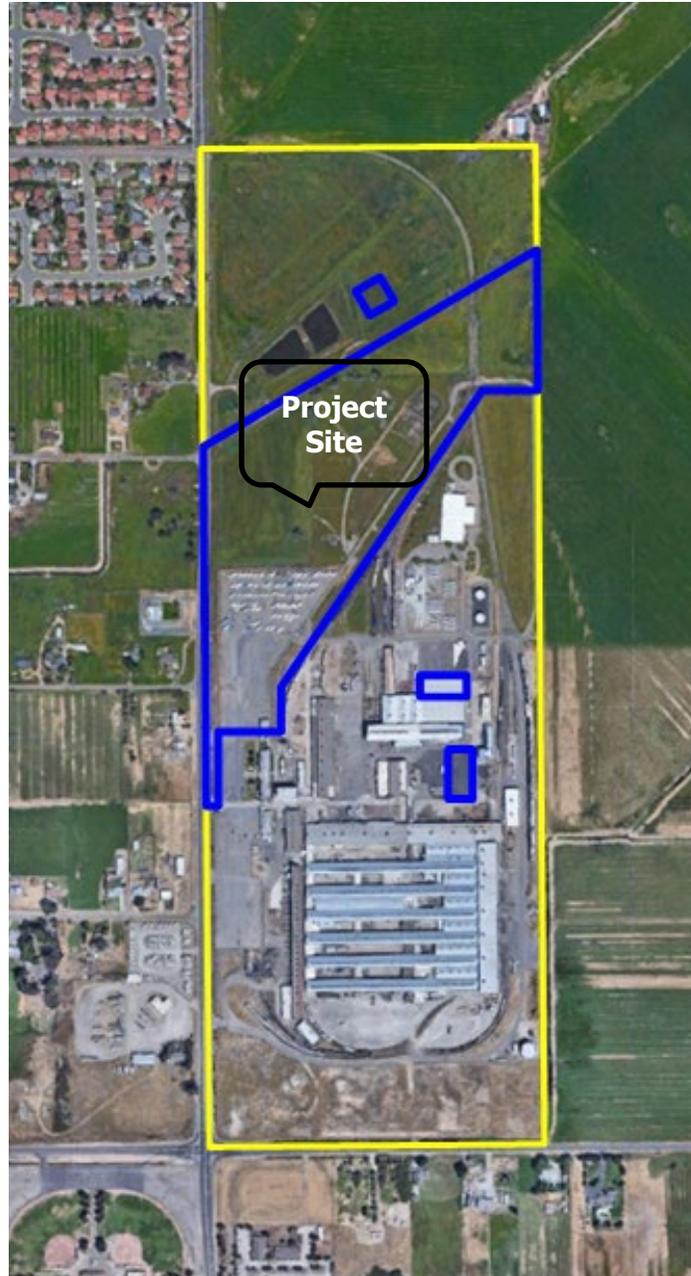


Figure 4 Facility Location

As shown in these figures, the Facility will primarily be located on parcels 2 and 2A of the RIC, with a small portion on the north edges of the main parcel A, use of a few existing buildings within parcel A, and a small portion of the Facility on the south edge of parcel B east of the existing stormwater ponds for a new stormwater pond.

2.3 Facility and Process Description

Aemetis process will hydrotreat renewable oils to produce SAF and RD.

2.3.1 Block Flow Diagram

Figure 5 is a Block Flow Diagram of the major production processes at the Facility. Exhibit 1 to this Addendum includes another copy of the same diagram in larger format.

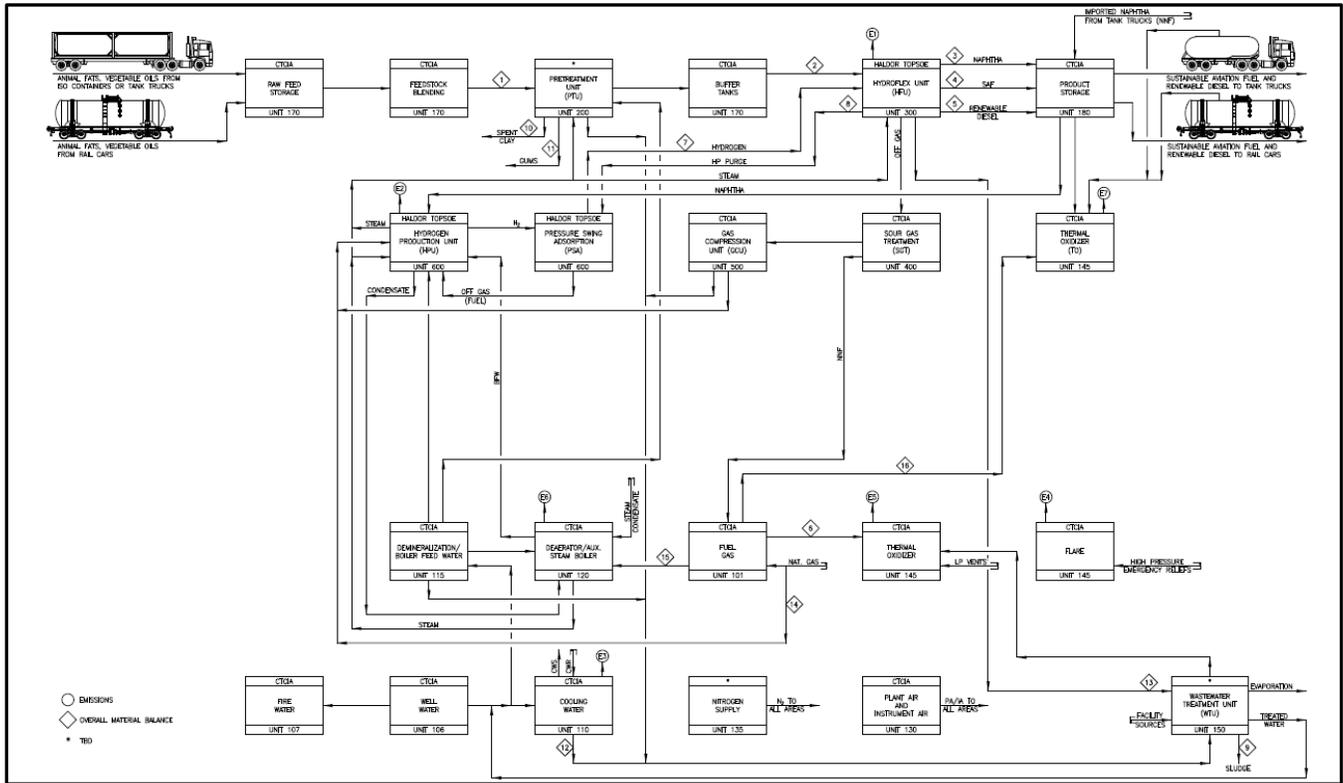


Figure 5 Facility Block Flow Diagram

2.3.2 Feedstock Receiving

The facility will receive on average 11,300 barrels (bbl) per day of vegetable oil and/or animal fats (oil feedstock) that will be used as feedstock to produce renewable fuels.

Oil feedstock will be received by rail tanker, tank trucks, or trucked iso-containers. Each rail tanker holds 30,000 gallons, tank trucks hold 7,000 gallons, and iso containers hold 5,500 gallons. The feedstock will be unloaded from the shipping vehicle or tank and pumped to feed storage tanks. Rail tankers will be unloaded in 60 minutes and iso-containers in 45 minutes.

2.3.3 Feedstock Blending and Pretreatment

The feedstock oils will be blended and then pumped to a Pretreatment Unit to remove impurities prior to hydro-processing. The feed pretreatment system consists of:

- ▶ Mixing – Feedstock will be mixed in a day tank (8,950 bbl) to maintain consistent oil composition.
- ▶ Drying and crude filtration – Removes polyethylene, food waste, metal, and protein.
- ▶ Ultra-degumming via pH adjustment – Removes metal ions and convert hydrophilic proteins.
- ▶ Water washing – Removes trace impurities such as chlorides and reduce the load to bleaching.

- ▶ Double-pass bleaching – Removes trace impurities, metals, and other compounds.

Waste oil from pretreatment will be recovered and processed through the pretreatment unit again. Gums generated will be kept in a storage tank and trucked to wastewater treatment or sold. The gums (also called soapstock) can be also sold for animal feed. Spent clay generated during pretreatment will be stored in dumpsters and removed from the facility by truck.

2.3.4 HydroFlex™ Unit (RD and SAF Production)

The HydroFlex Unit (HFU) will use a hydro-treating process licensed from Topsoe to convert the feedstock oils to SAF and RD. The HFU includes the following primary processes:

- ▶ Hydrogenation – Pretreated oil feed stock will be heated in the presence of hydrogen and catalyst to hydrogenate the oils and remove oxygen and impurities. The hydrocarbons from the reactor will contain varying length hydrocarbon chains, hydrogen, and other by-products. A series of processing steps will separate the hydrogen, hydrogen sulfide, and light end hydrocarbons from the heavier hydrocarbon stream. Separated hydrogen and light ends will be re-used in the process.
- ▶ Dewaxing Reactor and Separation – The heavier hydrocarbons (which contain the final products) will be processed in a dewaxing reactor to improve the cold flow properties of the products. Another series of separation steps will remove hydrogen, hydrogen sulfide, ammonia, light ends and light naphtha from the hydrocarbon liquid, and then split the heavy hydrocarbon stream into heavy naphtha, SAF and RD.
- ▶ Reuse of Byproducts – Recovered hydrogen gas, light ends, and light naphtha will be reused in the production process. The light and heavy naphtha will be stabilized via a fractionation process to remove light components prior to storage and use in the Reformer to produce hydrogen.

2.3.5 Hydrogen Production Unit

The Hydrogen Production Unit (HPU) will convert naphtha and offgas (outputs of the HydroFlex unit) into hydrogen using Topsoe Convection Reformer technology. The Facility is expected to produce enough naphtha and offgas to meet its normal hydrogen requirements. The HPU will consist of a series of reactors:

- ▶ Sour Gas Treatment -- Removes hydrogen sulfide from the offgas stream generated in the HFU so the gas can be used as feed in the Reformer.
- ▶ Hydrotreater – Converts organic sulfur compounds in the reformer feed into hydrogen sulfide and converts olefins to saturated hydrocarbons using a Co-Mo catalyst.
- ▶ Desulfurization Absorber – Removes the hydrogen sulfide from the process gases using a zinc oxide catalyst.
- ▶ Pre-Reformer – Converts long-chain hydrocarbons in naphtha to methane using a zinc catalyst.
- ▶ Reformer – Converts methane and naphtha to CO and H₂ using a zinc catalyst.
- ▶ High Temperature Shift Converter – Converts CO to H₂ and CO₂ using steam and an iron-chromium catalyst.
- ▶ Pressure Swing Adsorber (PSA) – Removes impurities to produce pure hydrogen (99+%) at a flow rate of 26 MMSCFD. The H₂ is used as an input to the HydroFlex Unit. The removed streams will be used as fuel in the Reformer.

These reactors will be fixed beds and have non-regenerable catalysts. The catalysts will be replaced every two years for the hydrotreater and desulfurization reactors and every 10 years for the other reactors. The reformer will be heated using off gases from the PSA as fuel, with natural gas used during startup and for supplemental energy. Heat will be recovered from the flue gas to generate steam used throughout the facility. The exhaust from the heaters will flow through an SCR prior to venting to atmosphere.

2.4 Inputs and Outputs

2.4.1 Inputs

Table 1 lists the types and quantities of feedstock and other materials that will be used by the facility.

Table 1 Input Materials

Input	Quantity Used	Transportation Mode	Number of Deliveries
<i>Feedstock</i>			
Vegetable Oil and Animal Fat (tallow)	475,000 gal/day (11,300 BPD)	Feedstock may be received by rail car, tanker truck or iso-container truck	16 rail cars/day or 86 iso-container trucks/day or 68 tanker trucks/day (or combination)
<i>Pretreatment</i>			
Citric Acid (50%)	54,750 gal/yr	1,000 gal trucks	55 trucks/yr
Sodium Hydroxide (50%)	82,125 gal/yr	1,000 gal trucks	83 trucks/yr
Bleaching Earth	7,200 tons/yr	24 ton trucks	300 trucks/yr
Filter Aid	4,344 tons/yr	24 ton trucks	181 trucks/yr
<i>HydroFlex Unit</i>			
SulfrZol 54	38,500 gal/yr	1,000 gal trucks	39 trucks/yr
MDEA	15,200 gal/yr	1,000 gal trucks	16 trucks/yr
<i>Boiler</i>			
Oxygen Scavenger	4,380 gal/yr	Tote	11 totes/yr
Amine	2,190 gal/yr	Tote	6 totes/yr
Phosphate	2,190 gal/yr	Tote	6 totes/yr
<i>Cooling Water</i>			
Sodium Hydroxide (50%)	13,000 gal/yr	1,000 gal trucks	13 trucks/yr
Sodium Hypochlorite	13,000 gal/yr	1,000 gal trucks	13 trucks/yr
Corrosion Inhibitor	4,800 gal/yr	Tote	12 totes/yr
Dispersant	13,000 gal/yr	1,000 gal trucks	13 trucks/yr
<i>Demin Water</i>			
Anti-Scalant	8,760 gal/yr	Tote	22 totes/yr

Input	Quantity Used	Transportation Mode	Number of Deliveries
Bisulfite	8,760 gal/yr	Tote	22 totes/yr
Sodium Hydroxide (50%)	19,710 gal/yr	1,000 gal trucks	20 trucks/yr
<i>Wastewater Treatment</i>			
Sodium Hydroxide (50%)	4,380 gal/yr	Tote	11 totes/yr
HCl Acid	4,380 gal/yr	Tote	11 totes/yr
Polymer	8,760 gal/yr	Tote	22 totes/yr
Coagulant/Nutrient	8,760 gal/yr	Tote	22 totes/yr
<i>SCRs:</i>			
19% Aqueous Ammonia	HFU – 6,800 gal/yr Boiler – 13,500 gal/yr Hydrogen – 40,200 gal/yr	6,400 gal trucks, 19% aqueous ammonia will be stored centrally and pumped to the two SCR locations.	10 trucks/yr

2.4.2 Storage Tanks

The facility will include onsite tanks to store finished products and liquid additives used in the processes. The storage tanks will include:

- ▶ Oil and Tallow Feedstock Storage – 4 tanks, 38,750 barrels each, cone roof
- ▶ Feedstock Blending Tanks – 2 tanks, 8,950 barrels each, cone roof
- ▶ Buffer Tanks – 2 tanks, 7,150 barrels each, cone roof
- ▶ RD/SAF – 4 tanks, 24,100 barrels each, internal floating roof
- ▶ Naphtha – 2 tanks, 4,850 barrels each, internal floating roof
- ▶ Slop/Off-spec – 1 tank, 3,650 barrels, internal floating roof
- ▶ Slop/Off-spec – 1 tank, 7,150 barrels, internal floating roof
- ▶ Untreated Oil (Soapstock) – 1 tank, 930 barrels, ASME Sec VIII construction
- ▶ Oil Pretreatment Slop – 1 tank, 500 barrels, cone roof
- ▶ Fire Water/Utility Water – 1 tank, 24,100 barrels, cone roof
- ▶ Demineralized Water – 1 tank, 3,000 barrels, cone roof

Tanks with floating roofs will include double seals to prevent release of fugitives and odors. Tanks with fixed roofs will include a vapor capture system and carbon filters to trap and prevent odors. Tanks containing feedstocks and refined products will be contained with berms, with foam systems for fire suppression.

RD and SAF will be moved from storage tanks and loaded onto trucks using loading arms at an effective rate of 400 gpm per truck, approximately 20 minutes per truck or approximately 30-45 minutes per rail car. The loading arms will have vapor recovery.

2.4.3 Outputs

Table 2 summarizes the facility's output streams.

Table 2 Outputs

Output	Production Quantity	Transportation Mode	Shipment Quantity
RD, SAF	120 mln gal/yr of combined RD and SAF	Rail or tanker truck	65 trucks or 15 rail cars per day (or combination)
Naphtha	940 BPSD	Rail or tanker truck	6 trucks or 2 rail cars per day (or combination)
Wastewater Sludge	4.8 TPD	Removed in dumpsters – landfilled	One dumpster removed every two days
Salt Cake from Wastewater Treatment	2.8 TPD	Removed in dumpsters – landfilled	One dumpster removed daily
Spent Clay from Pretreatment	12.9 TPD	Removed in dumpsters. Spent bleaching earth can be blended into animal feed due to the high oil content.	One dumpster removed daily
Waste Oil (Gums)	9,750 gallons/day gums produced when processing vegetable oils in the Pretreatment Unit	Small volumes may be sent to wastewater treatment; large volumes removed via truck. Another name for these gums is soapstock and it can be sold for animal feed.	2 trucks daily

2.4.4 Utilities

Table 3 lists utility inputs and outputs, including the quantity and source.

Table 3 Utility Inputs and Outputs

Utility	Flow Rate	Source	Annual Flow Rate
Water Supply	240 gpm	RIC wells; potential backup supply from City water	126,144,000 gallons
Cooling Water	10,100 gpm	Produced onsite	Recirculating
Steam	92,000 lb/hr	Produced onsite	Recirculating
Natural Gas	3.29 MMSCFD	PG&E	1,200 MMSCF
Electricity	15 MW	SFPUC and PG&E	15 MW
Instrument air	1,400 SCFM	Produced onsite	735,840,000 SCF
Nitrogen	10,000 SCFH	Produced onsite or delivered	87,600,000 SCF
Wastewater	145 gpm	Recycled in onsite WWTP and reused; backup connection to City sewer	Recycled onsite
Sanitary Wastewater	Tbd	City sewer	Tbd
Stormwater	varies	Retention ponds	Varies

2.4.4.1 Water Supply and Uses

Water used in the facility will be supplied by the onsite wastewater treatment plant and RIC wells. The facility will require 300 gpm of water supply, with approximately 60 gpm to be supplied by treated wastewater and the balance of 240 gpm from RIC wells. The Facility will also treat collected stormwater to provide additional water supply. The Facility will also potentially connect to the City water supply if needed:

- ▶ *Cooling Water* - Several plant processes will use non-contact cooling water produced by an evaporative cooling tower that includes a cooling water basin, tower, two pumps, chemical treatment, and distribution circuits to deliver and receive back the cooling water. The cooling water will recirculate back to the cooling tower for reuse where additional water will be supplied to offset evaporation from the tower.
- ▶ *Fire Water* - Fire water will be stored in a 24,100 bbl tank. Half of the total capacity is dedicated to firewater and the balance will be available for use as utility water for the plant.
- ▶ *Process Water* - Plant process water will be supplied from the fire water storage tank.
- ▶ *Steam* - A deaerator will provide boiler feed water for steam production. Most steam will be produced using energy from the reformer flue gases. An auxiliary boiler will produce additional steam using natural gas as fuel. A header system will distribute steam at different pressures throughout the facility. High pressure steam produced by the reformer will be de-superheated with boiler feed water to reduce the pressure. Steam condensate will be collected and returned as boiler feed water to reduce water make-up requirements.
- ▶ *Employee Washrooms/Breakroom* – An onsite employee washroom and breakroom will be supplied with potable water from existing RIC wells or from City water.

2.4.4.2 Natural Gas

Natural gas will be used as fuel in heaters and the boiler. The natural gas can also be used as a backup feedstock to the reformer, but this is not expected to be necessary during regular operation. Natural gas will be supplied by Pacific Gas & Electric from its existing pipelines at the RIC.

2.4.4.3 Electricity

Electricity will be supplied by San Francisco PUC and Pacific Gas & Electric, both of which have on site connection points.

2.4.4.4 Instrument Air

The instrument air system will provide 110 pounds per square inch gauge (psig) compressed air to operate instruments and controls, and for general utility service inside the plant. The instrument air system includes:

- ▶ Instrument air compressor package – Compresses air with electric motor-driven compressors, and includes air intake filter, two-stage rotary screw water-cooled air compressor, intercooling, water separation, aftercooling, aftercooler separation, lubrication, and control system
- ▶ Wet air receiver – Stores the wet air from the compressor package
- ▶ Instrument air dryer package – Dries the compressed air using pre-filtration, two-stage desiccant air drying, and post-filtration
- ▶ Instrument air receiver – Provides steady pressure to system and serves as a reservoir in case of heavy demand

2.4.4.5 Nitrogen

Nitrogen will be produced on site via air compression and pressure swing adsorption. Nitrogen will be used for compressor seals, blanket gas to tank, purging at unloading/loading equipment, and as a backup for inert purge gas for flare system. Additional N₂ may also be purchased and delivered by truck.

2.4.4.6 Wastewater Treatment

The facility will treat process wastewater on site to create clean water for process use. The wastewater treatment plant (WWTP) includes:

- ▶ Process wastewater sump – Collects process wastewater to be pumped to the Equalization tank
- ▶ Equalization tank – Removes oil via steam sparging and oil skimming
- ▶ pH neutralization system – Neutralizes pH using 50% sulfuric acid or 25% caustic soda
- ▶ Coalescing plate unit – Removes free oil globules larger than 150 microns and solids
- ▶ Dissolved gas flotation (DAF) – Recirculates clean effluent through pressurization of plant air to remove solids and skim oil
- ▶ Anaerobic treatment system – Converts biological oxygen demand (BOD) and chemical oxygen demand (COD) into biogas via anaerobic microorganisms
- ▶ Anchor channel biotreater tank – Clarifies and removes sludge from anaerobic treatment
- ▶ Gravity filter – Removes suspended solids to meet requirements for water reclamation
- ▶ Aerobic Digester Tank – Separates solids and liquids from sludge using plant air. Gases from the digester will go to a thermal oxidizer.
- ▶ Filter Press – Concentrates sludge from aerobic digester tank into a cake that will be trucked offsite for disposal.
- ▶ Recycle System – Treated and neutralized wastewater, filter backwash water and cooling tower blowdown are collected, equalized, softened and processed through a reverse osmosis system for reuse.
- ▶ Crystallizer – Reject from the reverse osmosis system is sent to the Zero Liquid Discharge system comprised of a forced circulation crystallizer unit.

The Facility will produce approximately 100 gpm of wastewater that will be processed onsite on a continuous basis. Intermittently, there will be about 45 gpm of additional wastewater from filter backwash and clean-in-place streams that will also be processed in the WWTP. WWTP will be designed to treat any hydrocarbons or contaminants that may be contained in the stormwater being managed onsite. The WWTP will include storage for seven days of wastewater generation in case the WWTP is inoperable. If the WWTP is down longer than 7 days, then the facility will scale down operations to align with available wastewater capacities. The Facility is also expected to include a separate permitted connection to the City sewer to be used for backup.

The RIC currently connects to the City sewer system for disposal of sanitary wastewater. Aemetis' Facility will also connect to this system for wastewater from lunchroom, employee showers, sinks, toilets, and similar sources. This is expected to be a small quantity in the context of the RIC total flows.

2.4.4.7 Stormwater

Stormwater run-off will flow through open site ditches and underground pipes that drain to a retention pond with a capacity of 52,400 cu ft. The retention pond will be located east of the current stormwater retention ponds on Parcel B of the RIC, sized approximately at 125 ft by 125 ft. Process areas that have potential to contaminate storm water with hydrocarbons or other unwanted chemicals will be curbed to prevent runoff from draining to the storm water system. Potentially contaminated water will be directed to a sump and pumped to the Wastewater Treatment Unit for treatment. The Facility will also be able to pump collected

stormwater from the retention pond for filtering and re-use as process water to reduce the facility's raw water consumption.

2.4.4.8 Thermal Oxidizers

Two 7.6 million British thermal unit (mmBTU) thermal oxidizers will be used to combust exhaust gases prior to emission to the atmosphere. The loading and unloading racks for both trucks and rail will include a vapor recovery system that will capture vapors and route them to the thermal oxidizers to prevent odors.

2.4.4.9 Flare

A standby flare will combust gases vented during a process upset prior to emission to the atmosphere. The flare has small natural gas pilot light, but it will combust gases only during unplanned venting and not during normal operations.

2.4.4.10 Fire Protection

The Facility will be designed with its own onsite fire protection equipment and systems in accordance with the California Fire Code and applicable NFPA guidelines. This design is currently expected to include:

- ▶ Firefighting water storage tank (combined with the freshwater supply tank described above)
- ▶ New firewater loop with hydrants around the site
- ▶ Targeted firewater monitors for tanks and critical equipment
- ▶ Cooling water spray on critical tanks for cooling
- ▶ Foam stations for monitors at the fuel storage tanks
- ▶ Firewater pumps (electric with diesel for emergency backup)
- ▶ Firewater jockey pumps (electric and diesel)

Aemetis final fire protection design and full requirements will be subject to review and approval by the City of Riverbank and fire officials when Aemetis seeks approval of building permits.

2.5 Site Plan and Operations

2.5.1 Site Plan

Figure 6 below and Exhibit 2 to this Addendum show the Facility's plot plan, including the general layout of equipment, buildings, and traffic flow of the facility. There will be two access points on Claus Road; the north entrance will be for entering truck traffic and the south entrance will be for exiting truck traffic as well as normal site traffic. The Facility will have its own truck scales for incoming and exiting vehicles.

The Facility will include the following buildings:

- ▶ Administration Building (existing 2,819 sf site building)
- ▶ Warehouse (existing 9,600 sf site building)
- ▶ Control Room
- ▶ Analytical Lab
- ▶ Truck Operator Shelter
- ▶ Rail Operator Shelter
- ▶ Guard Shacks (2)
- ▶ Truck Canopy

- ▶ Rail Canopy
- ▶ Compressor Shelter
- ▶ Demin Water Equipment Shelter
- ▶ Pretreatment Shelter
- ▶ Wastewater Treatment Shelter

Employee facilities include a lunchroom, lockers, and showers in the Control Room building.

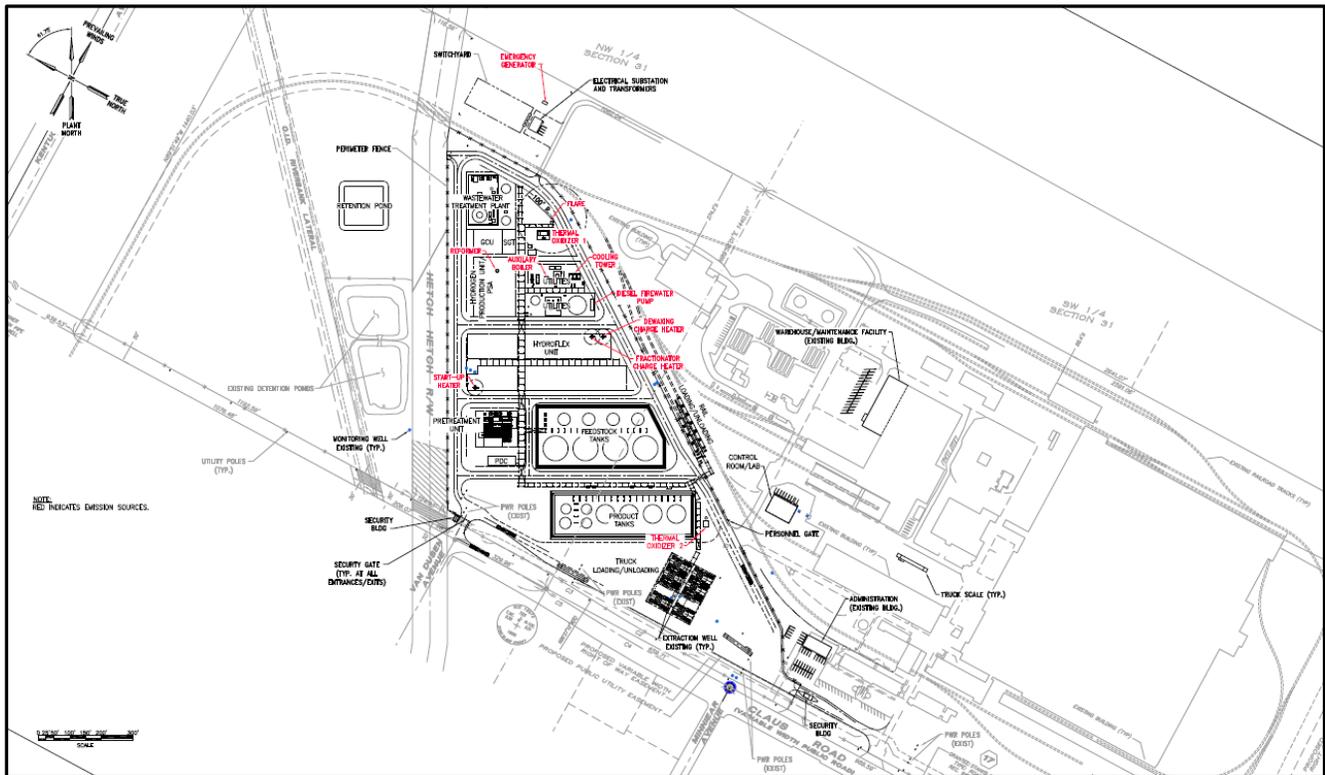


Figure 6 Site Plan

Figure 7 shows a rendering of the street level view looking northeast from Claus Road, including expected fencing and landscaping.



Figure 7 Rendering of Street Level View along Claus Road

2.5.2 Construction

Construction will start when all permits are obtained and financing is closed. Construction will be managed in one phase and is anticipated to take 24 months with 700 people, primarily contractors and subcontractors.

When it was owned and operated by the Army, the RAAP facility discharged hazardous substances that contaminated the soil and groundwater under portions of the RIC. The Army has assumed responsibility for the environmental clean-up and is closely coordinating with the City of Riverbank, Aemetis, and the applicable federal and state regulatory agencies. The Facility's construction and other ground disturbing activities will be subject to review and approval by these regulatory agencies to ensure it is conducted in a manner that protects against exposure to any existing hazardous substances.

2.5.3 Hours of Operation

The facility will operate 24 hours per day, 365 days per year. Equipment may shut down periodically for planned and unplanned maintenance, but employees will be on site at all times. Deliveries will be scheduled primarily during normal business hours.

2.5.4 Employees

Once operating, the facility will employ approximately 50 people with the job functions listed below. The plant will operate with multiple shifts so not all employees will be on site at the same time, although more will be on site during daytime operations than during off-shifts.

- ▶ Plant Manager (1)
- ▶ Safety/Quality Engineer (1)

- ▶ Admin/Accounting/Procurement (3)
- ▶ Operations Supervisors (4)
- ▶ Loading/Unloading Operators (6)
- ▶ Plant Operators (12)
- ▶ Maintenance Manager (1)
- ▶ I&E Maintenance (2)
- ▶ Mechanical Maintenance (2)
- ▶ General Maintenance (2)
- ▶ Lab Supervisors (4)
- ▶ Lab Techs (4)
- ▶ Security Guards (8)

The site plan includes parking near the administrative building and control room. Racks will be provided for employees who commute by bike. While at work, employees will travel around the interior of the facility using e-bikes provided by the facility.

2.5.5 Fencing and Design

The site will be secured by a chain link fence with guard stations controlling ingress and egress. Along Claus Road the chain link will include privacy slats to provide visual shielding in addition to vegetation and trees. The fencing along Claus Road will be set back to allow for drainage, power lines, and sidewalks (where appropriate).

2.5.6 Traffic Summary

Materials will be shipped to and from the Facility by both truck and rail. To address this range of transportation activity during operations, this project description describes two scenarios: all truck operations (with no rail shipments, so it has the highest number of truck trips), and use of rail for feedstock and finished product deliveries. Actual operations will use a mix of truck and rail deliveries of feedstock, other additives and finished products. Shipping and receiving could occur six days per week for 12 hours per day. However, to conservatively estimate the maximum number of trips at one time, descriptions below assume shipping and delivery activities are concentrated into a shorter period of eight hours per day and five days per week.

The Facility will have two entrances, one at the main gate to the RIC and a second farther north on Claus Road. The area around the main gate, including the primary traffic route to the gate, will be widened and improved as part of the County Corridor project. Aemetis will continue to monitor and coordinate with the planners of that project on those improvements.

Table 4 shows the all-truck scenario and includes daily traffic activity levels as well as daily and annual vehicle miles travelled (VMT) assuming all receiving and delivery activities would be by truck. Table 5 shows the mixed rail and truck scenario, which assumes inbound oil feedstock and outbound finished RD and SAF are shipped by rail with are some truck deliveries for other materials. The Facility could include up to 16 daily inbound feedstock railcars (and 1 locomotive per string of railcars) and up to 17 outbound RD/SAF and Naphtha outbound railcar deliveries (and 1 locomotive per string of railcars). Sierra Northern Railway currently has a long-term lease to operate the rail spurs at the RIC and maintains Tier 3 rail power genset locomotives onsite for managing railcar movements. All rail movement on the property will be under Sierra Northern Railway's operating rules and will comply with California Public Utility Commission and Federal Railroad Administration regulations.

Table 4 Facility Operations Traffic Activity Assuming All Truck

	Daily	One Way	Daily	Annual
Activity	Round Trips	Trip Length ^{1,2}	VMT	VMT
Inbound Truck Trips	89	86	15,308	3,980,080
Outbound Truck Trips	75	96	14,400	3,744,000
Employee Trips	50	16.8	1,680	613,200
VMT Summary			31,388	8,337,280

Notes:(1) CalEEMod Version 2020.4.0 Appendix D, Table 4.2 for employee trip length.

(2) Measured using Google maps actual rail travel distance onsite and actual travel distance between Riverbank and SFO (outbound) and Port of Oakland (inbound).

Table 5 Facility Operations Traffic Activity Assuming Rail & Truck

	Daily	One Way	Daily	Annual
Activity	Round Trips ¹	Trip Length ^{2, 3}	VMT	VMT
Inbound Truck Trips	3	86	516	134,160
Outbound Truck Trips	4	96	768	199,680
Employee Trips	50	16.8	1,680	613,200
Rail onsite	2	0.5	1	260
Inbound Rail off-site	1	86	86	22,360
Outbound Rail off-site	1	96	96	24,960
VMT Summary			3,147	994,620

Notes: (1) Rail activities represent locomotives needed per day to move the railcar deliveries.

(2) CalEEMod Version 2020.4.0 Appendix D, Table 4.2 for employee trip length.

(3) Measured using Google maps actual rail travel distance onsite and actual travel distance between Riverbank and SFO (outbound) and Port of Oakland (inbound).

2.6 Riverbank Industrial Complex (RIC) Zoning

The Facility will primarily be located on Parcel 2 within the RIC parcel map as shown in Figure 1 above. Portions will also be located on Parcel A (Main Parcel), Parcel 2, and Parcel B. The zoning for the RIC is established by a Specific Plan. Table 6 summarizes the applicable zoning designations from the RIC Specific Plan:

Table 6 Zoning and Land Use

Parcel	RIC Zoning Areas	Carbon Zero 1 Project Activity	Permitted or Conditional Use
A	RAAP-2 General Industrial	Entrance drive, scales, guard shack, railroad spur, truck rack, control room, parking, existing buildings for administration and warehouse	Permitted

B	RAAP-1 Industrial/ R&D	Stormwater pond	Permitted
2	RAAP-1 Industrial/ R&D	SAF/RD production equipment and supporting utilities	"Light" and "General" Manufacturing and Processing are Permitted uses. "Heavy" Manufacturing and Processing are allowed with Use Permit
2A	RAAP-R Retail	Tanks and truck loading racks	"Manufacturing and Processing-Light" activities are allowed with a Use Permit

Notes:

1) From Table 5-1, Allowed Uses in RAAP Areas, from RAAP Specific Plan (Riverbank Local Redevelopment Authority, 2013), pp. 65-66

Based on these zoning designations a City of Riverbank Use Permit would be required for the following:

- ▶ To allow heavy industry activities in the RAAP-1 zone
- ▶ To allow light industry activities in the RAAP-R zone

2.7 Permits and Regulatory Programs

The Facility will be subject to or potentially subject to the following permit requirements and regulatory programs:

- ▶ City of Riverbank: Use Permit
- ▶ City of Riverbank: Building Permits (including mechanical, electrical, grading, fire review, etc.)
- ▶ City of Riverbank: Lead Agency for CEQA
- ▶ City of Riverbank: Business License
- ▶ City of Riverbank: Tree Ordinance (where applicable)
- ▶ City of Riverbank: Connections to City water supply and City sewer line
- ▶ Stanislaus County or City of Riverbank: Encroachment permit for street access and any necessary offsite improvements (if applicable)
- ▶ Stanislaus County, Department of Environmental Resources, Environmental Health Services: Hazardous Materials Business Plan, Emergency Action Plan, SPCC plan (as applicable)
- ▶ Stanislaus County, Department of Agriculture & Weights and Measures: Scale Permit
- ▶ Fire Department: California Fire Code
- ▶ San Joaquin Valley Air Pollution Control District (SJVAPCD): Air emissions permits (authorities to construct and permits to operate)
- ▶ San Francisco Public Utility Commission (SFPUC): Application for Land or Right-of-Way Access Permit for new pipes (if needed)
- ▶ California Air Resources Board (CARB): Low Carbon Fuel Standard (LCFS), Pathway Certification
- ▶ Central Valley Regional Water Quality Control Board (Central Valley RWQCB): Stormwater Pollution Prevention Plans (construction and operation), Waters of the State permit (wetlands disturbance if applicable), Wastewater discharge permits (if applicable)
- ▶ CalOSHA: Construction permits for structures and pits; operating permits for pressure vessels; compliance with design standards and regulatory programs
- ▶ California Department of Toxic Substances Control (DTSC): California Accidental Release Program (CalARP) and Federal Risk Management Program (RMP) CalARP/RMP plan (if applicable)

- ▶ California Energy Commission: Award of grant funds (if applicable)
- ▶ U.S. Environmental Protection Agency: Renewable Fuels Standard Facility Registration; Fuel Registrations; Low Carbon Renewable Fuel Pathway Approval (if applicable)
- ▶ U.S. Environmental Protection Agency (US EPA): Hazardous Waste Generator ID
- ▶ U.S. EPA, DTSC, RWQCB, U.S. Army: Soils Management Plan
- ▶ U.S. Army: Compliance with lease provisions, including approval of physical modifications

3. CEQA PROCESS

3.1 History of the RAAP Site

The U.S. Army used the RAAP Site primarily to produce ammunition from World War II until 2010. In 2005, the federal government designated the RAAP Site for closure and reuse under the federal Defense Base Closure and Realignment Act of 1990.

In 2007 and 2008, the City of Riverbank prepared a Base Reuse Plan and held several public hearings on the plan. In 2009, the City adopted its current General Plan and certified an associated EIR that anticipated the transfer of the RAAP Site to the City of Riverbank. The General Plan designates the RAAP Site as "Industrial/Business Park," and designates land adjacent to the RAAP Site to the east and west of the southern half of the RAAP Site as the same Industrial/Business Park category.

The City began leasing the RAAP Site from the U.S. Army in 2010, and entered several subleases with various tenants to begin reuse of the Site. The City is also in the process of acquiring actual title to portions of the RAAP Site land from the U.S. Army. In 2021, the City leased portions of the RAAP Site to Aemetis Properties Riverbank, Inc. as Master Developer. Pursuant to that lease, Aemetis took over operations of the built-up portions of the facility and is developing the open portions. The lease to Aemetis also includes agreements for the City to sell the property to Aemetis after the facility transfers from the U.S. Army.

3.2 The Specific Plan EIR

On March 28, 2013, the City issued a draft EIR ("DEIR") for the development of the RAAP Site pursuant to a Specific Plan, and accepted public comments on the documents. The City prepared a final EIR ("FEIR") in November 2013. Pursuant to CEQA, the full EIR for the Specific Plan includes both the draft EIR and the final EIR. On February 10, 2014, the Riverbank City Council certified the EIR, adopted the Specific Plan for the RAAP Site, made findings pursuant to CEQA related to the impacts of the project, and adopted a Mitigation Monitoring and Reporting Plan ("MMRP") that contains final mitigation measures for significant impacts. The purpose of the Specific Plan was to change the city zoning applicable to the RAAP Site to allow for private use. The EIR for the Specific Plan analyzes the effects of the rezoning and the effects of building out the RAAP Site in accordance with the planned private uses under the rezoning. It was anticipated that individual projects built at the Riverbank Industrial Complex (RIC) could rely on the certified EIR, subject to the appropriate CEQA standards to determine if additional analysis would be necessary and the appropriate type of analysis. (Specific Plan Page 117.)

3.3 CEQA Standard

The legal standard for the appropriate CEQA review of a specific project after adoption of an EIR is provided in CEQA Guidelines Sections 15168 and 15162. In order to promote efficient development, those sections require agencies to rely on existing environmental documentation unless a proposed activity includes substantial changes from the project described in the EIR (including changes to the project, circumstance or new information), and those changes require major revisions to the EIR due to new or substantially worse significant adverse effects on the environment. If that standard is met, the activity would require additional environmental documentation such as a supplemental EIR, subsequent EIR, or mitigated negative declaration. In each case, such documentation would be focused on just those new substantial changes. If the new

activity does not include substantial changes to the previously described project, or if there are changes that do not cause new significant adverse impacts to the environment, CEQA states the "lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred." *CEQA Guidelines Section 15164(a)*.

3.4 Checklist Analysis

Section 4 below compares the Aemetis Facility to the project described in the Specific Plan EIR using the same checklist questions and significance thresholds typically used in an Initial Study and an EIR. Specifically, the analysis includes a section for each of the 20 environmental resource areas typically discussed in a CEQA analysis. For each resource area, the analysis describes the scope of the project described in the EIR and conclusions of the EIR, and compares Aemetis' Facility to the project that is analyzed in the EIR with respect to each significance threshold listed in the EIR.

Based on this Checklist review, pursuant to CEQA Guidelines Section 15168 and 15162, the Facility does not include substantial changes to the project described in the Specific Plan EIR that would meet the requirements of Section 15162 for performing additional environmental review. As a result, this Addendum can be placed in the record with the existing EIR to (i) be reviewed in conjunction with decisions about the Facility, and (ii) document the City's determination that a subsequent EIR is not required.

4. ENVIRONMENTAL REVIEW

4.1 CEQA Guidelines Appendix G Updates

Since the City’s certification of the EIR in 2014, the CEQA Guidelines Appendix G, Environmental Checklist, has been revised, with revisions made to some existing checklist questions, the addition of some new checklist questions, and the addition of new resource areas for energy, greenhouse gases, tribal cultural resources, and wildfire. Table 7 compares the scope of the EIR and subsequent changes to the CEQA environmental checklist. The modifications to the checklist questions are reviewed in the discussion for each resource area below.

Table 7 EIR Scope Comparison with 2019 CEQA Environmental Checklist Updates

CEQA Environmental Checklist Impact Areas	Was the Resource Area included in the Specific Plan EIR Analysis?	2019 CEQA Environmental Checklist Updates Changes?	Summary of Changes to EIR Findings
Aesthetics	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Agriculture and Forestry Resources	Yes	No	No change
Air Quality	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Biological Resources	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Cultural Resources	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Energy	No	Yes. New Resource area	New checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Geology and Soils	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Greenhouse Gas Emissions	Yes	Yes	New/modified checklist question(s) are addressed in Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.

CEQA Environmental Checklist Impact Areas	Was the Resource Area included in the Specific Plan EIR Analysis?	2019 CEQA Environmental Checklist Updates Changes?	Summary of Changes to EIR Findings
Hazards and Hazardous Materials	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Hydrology and Water Quality	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Land Use Planning	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Mineral Resources	Yes	No	No change
Noise	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Population and Housing	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Public Services	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Recreation	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Transportation	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.
Tribal Cultural Resources	Yes. This is now a discrete resource area but the checklist question was previously included in Cultural Resources.	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings of the project described in the EIR as a result of the Facility. Comment letter on NOP IS of the EIR documents that tribal representatives were contacted and they did not request consultation at that time.
Utilities / Service Systems	Yes	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.

CEQA Environmental Checklist Impact Areas	Was the Resource Area included in the Specific Plan EIR Analysis?	2019 CEQA Environmental Checklist Updates Changes?	Summary of Changes to EIR Findings
Wildfire	Not a discrete resource area, but it was partially assessed in Hazards analysis previously	Yes	New/modified checklist question(s) are addressed in CEQA Environmental Checklist below with no change in findings described in the EIR as a result of the Facility.

4.2 CEQA Addendum Evaluation Questions

Pursuant to California Public Resources Code (PRC) Section 21166 and CEQA Guidelines Section 15162, when an environmental impact report (EIR) has been certified or a negative declaration adopted for a project, no subsequent EIR or negative declaration shall be prepared for the project unless the lead agency determines that one or more of the following conditions are met:

Are there Substantial Changes to the Project, and, If So, Do They Involve New Significant Impacts or Substantially More Severe Impacts?

Pursuant to Section 15162(a)(1) of the CEQA Guidelines, this column in the tables below indicate whether there are substantial changes to the project that would require major revisions to the certified Environmental Impact Report due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Are there Substantial Changes in the Circumstances for the Project, and, If So, Do They Involve New Significant Impacts or Substantially More Severe Impacts

Pursuant to Section 15162(a)(2) of the CEQA Guidelines, this column indicates whether there have been substantial changes in the circumstances under which the project is undertaken that have occurred subsequent to the certified Environmental Impact Report, which would require major revision to an Environmental Impact Report due to the involvement of new significant environmental impacts that were not considered in the existing environmental document or a substantial increases in the severity of previously identified significant impacts.

Is there New Information of Substantial Importance, and, If So, Does it Identify New Significant Effects

Pursuant to Section 15162(a)(3)(A-D) of the CEQA Guidelines, this column indicates whether new information of substantial importance which was not known and could not have been known with the exercise of reasonable diligence at the time the environmental documents were certified as complete (or adopted) is available, requiring an update to the analysis of the environmental documents to verify that the environmental conclusions and mitigation measures remain valid. If the new information shows that: (A) the project will have one or more significant effects not discussed in the environmental documents; or (B) significant effects previously examined will be substantially more severe than shown in the environmental documents; or (C) mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects or the project, but the project proponents decline to adopt the mitigation measure or alternative; or (D) mitigation measures or alternatives which are considerably different from those analyzed in the environmental documents would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative, the question would be answered 'Yes' requiring the preparation of an Environmental Impact Report.

However, if the additional analysis completed as part of this Environmental Checklist review finds that the conclusions of the certified Environmental Impact Report remain the same and no new significant impacts are identified, or identified significant environmental impacts are not found to be substantially more severe, the question would be answered 'No' and no additional documentation would be required

Section 4.3 below, Environmental Analysis, contains a summary table for each environmental resource area recommended by the CEQA Guidelines that addresses the above questions for each resource area, followed by a comparison of the Facility to the project described and evaluated in the Specific Plan EIR. The table at the beginning of each section also identifies mitigation measures adopted for each resource area when the City of Riverbank certified the EIR.

4.3 Environmental Analysis

I. Aesthetics

Aesthetics Checklist Questions

I. Aesthetics. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Have a substantial adverse effect on a scenic vista?	DEIR pp. 4.1-1 to 4.1-12	No	No	No	No
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	DEIR pp. 4.1-1 to 4.1-12	No	No	No	No
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	DEIR pp. 4.1-1 to 4.1-12	No	No	No	No
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	DEIR pp. 4.1-1 to 4.1-12	No	No	No	No

Checklist question Ia: The EIR identifies the only scenic vista in Riverbank’s General Plan as the scenery along the Stanislaus River, which is approximately one mile from the RAAP Site. The EIR states that “the General Plan emphasizes the importance of scenic views along the Stanislaus River, but no other scenic views are identified in the Riverbank General Plan. Implementation of the Specific Plan would not impact scenic views along the Stanislaus River, and therefore, the Specific Plan would cause *no impact* on General-Plan-designated scenic views” (DEIR 4.1-9). The EIR analysis also applies to individual projects implementing the Specific Plan since they are located on the same land, including the Facility. Therefore, the Facility does not change the project described in the EIR with respect to this threshold.

Checklist question Ib: The EIR determines that the Specific Plan area “is located approximately 20 miles to the east of Interstate 5, an Officially Designated State Scenic Highway” (DEIR 4.1-9) and determines that the Specific Plan would have “*no impact* on views from a scenic highway” (DEIR 4.1-10). This conclusion also applies to individual projects located within the Specific Plan area, including the Facility. Therefore, the Facility does not change the project described in the EIR with respect to this threshold.

Checklist question Ic: As stated in the Specific Plan and referenced in the EIR, “the existing visual character of the site is predominantly industrial” (DEIR 4.1-10). The Facility includes the installation of large industrial equipment, which is consistent with the existing visual character. The closest side of the Facility will be more than 30 feet from the edge of Claus Road; this industrial equipment will be visible from the street and other areas outside of the RAAP area. Because there is a buffer between the edge of the Facility and the street (Claus Road), there will be adequate space for the installation of additional aesthetic design features prescribed in the Specific Plan (e.g., fence with privacy slats, landscaping, etc.) between the Facility and the street as described in the Project Description. Given that the existing visual character of the site is predominantly industrial and due to the planned landscaping improvements along the site’s boundaries with Claus Road, the EIR determines that the implementation of the Specific Plan will be an overall beneficial impact to the “existing visual character or quality of the site and its surroundings” (DEIR 4.1-10). The Facility will be part of the build out of the Specific Plan and is consistent with the existing visual character of the RAAP Specific Plan, as shown in Figure 2-9, the rendering of street views, and therefore the Facility does not represent a substantial change from the project described in the EIR.

Checklist question Id: The EIR states that the development and improvements described in the Specific Plan could contribute to light and glare during both daytime and nighttime (DEIR 4.1-11). The EIR also describes many existing sources of glare already existing in the industrialized portion of the RAAP Site. The EIR states that “the Riverbank General Plan contains policies which would mitigate these potential impacts” (DEIR 4.1-11). Based on policies DESIGN-17.2 and CONS-7.6 (DEIR 4.1-11), the EIR then determines that the additional light and glare created by the implementation of the Specific Plan and controlled by the existing development policies will be less than significant. The Facility is part of the build out of the RAAP site discussed in the Specific Plan and will adhere to all applicable pre-existing guidelines as described in the EIR (DEIR 4.1-2 to 4, 11). Therefore, the Facility does not change the project described in the EIR with respect to this threshold.

II. Agriculture and Forestry Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state’s inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Agriculture and Forestry Resources Checklist Questions

II. Agriculture and Forestry Resources. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	DEIR pp. 4.2-1 – 4.2-14	No	No	No	No
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	DEIR pp. 4.2-1 – 4.2-14	No	No	No	No

II. Agriculture and Forestry Resources. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	DEIR pp. 4.2-1 – 4.2-14	No	No	No	No
d) Result in the loss of forest land or conversion of forest land to non-forest use?	DEIR pp. 4.2-1 – 4.2-14	No	No	No	No
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	DEIR pp. 4.2-1 – 4.2-14	No	No	No	No

Checklist question IIa: According to the EIR, The RAAP site “does not contain any Prime Farmland, Unique Farmland, or Farmland of Statewide Importance” (DEIR 4.2-10). The land on the RAAP site that is designated as Farmland of Local Significance under the Farmland Mapping & Monitoring Program (FMMP) is “not considered farmland of concern under CEQA” (4.2-10). Therefore, the EIR determines that there a no impacts

to this resource area. Since the Facility will be located on the same land analyzed in the EIR, the Facility does not change the project described in the EIR with respect to this threshold.

Checklist question IIb: The primary purpose of the Specific Plan is to create new zoning designations for the RAAP Site (RAAP Specific Plan, page 7). There are no agriculturally-zoned areas within the RAAP Site; therefore, the EIR determines that the Specific Plan “would not conflict with existing agricultural zoning or Williamson Act contracts and there would be *no impact*” (DEIR 4.2-10). The Facility will be built on the same land analyzed in the EIR. Therefore, the Facility does not change the project described in the EIR with respect to this threshold.

Checklist question IIc: The EIR determines that there are no timber resources in the City of Riverbank (DEIR, section 4.2), so the implementation of the Specific Plan would have no impact on forest resources. The Facility will be built on the same land analyzed in the EIR. Therefore, the Facility does not change the project described in the EIR with respect to this threshold.

Checklist question IId: The EIR determines that no forest land exists at the RAAP site, and the Specific Plan therefore creates no risk of conversion due to this project, so there are no impacts. The Facility will be built on the same land analyzed in the EIR. Therefore, the Facility does not change the project described in the EIR with respect to this threshold.

Checklist question IIe: The EIR states that “approximately 20 acres of the [RAAP] site is designated as Farmland of Local Importance under the FMMP” (DEIR 4.2-11). This land is currently undeveloped. The EIR’s discussion includes a study conducted to determine whether the conversion of this land for and industrial/business park would result in a significant environmental impact using a detailed Land Evaluation/Site Assessment (LESA) model pursuant to CEQA Appendix G and the City of Riverbank Draft Sustainable Agricultural Committee Report of January 2010. The LESA model determined that the impact of conversion of the 20 acres of grazing to an industrial and business park would be less than significant. This conclusion also applies to all projects built within the RAAP Site. Therefore, the Facility does not change the project described in the EIR with respect to this threshold.

III. Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Air Quality Checklist Questions

III. Air Quality. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Conflict with or obstruct implementation of the applicable air quality plan?	DEIR pp. 4.3-1 to 4.3-42	No	No	No	No
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	DEIR pp. 4.3-1 to 4.3-42	No	No	No	DEIR Mitigation Measures AQ-1a through AQ-1e and AQ-2 (DEIR 4.3-39 to 4.3-40; MMRP pp. 1 to 5)
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	DEIR pp. 4.3-1 to 4.3-42	No	No	No	DEIR Mitigation Measures AQ-1a through AQ-1e and AQ-2 (DEIR 4.3-39 to 4.3-40; MMRP pp. 1 to 5)
d) Expose sensitive receptors to substantial pollutant concentrations?	DEIR pp. 4.3-1 to 4.3-42, and FEIR pp. 3-1 to 3-11	No	No	No	No

III. Air Quality. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
e) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	DEIR pp. 4.3-1 to 4.3-42	No	No	No	No

Appendix A includes an air quality technical memo prepared by GeoSyntec that describes the Facility’s criteria air pollutant emissions estimates for construction and operations.

Construction Phase Impacts

The Facility will occupy 960,319 square feet, including 77,076 square-feet for a new rail spur area. Construction of buildings, improvements to roads, and installation of equipment would occur over an approximately two-year period. Estimates of air pollutant emissions associated with the construction are based on Aemetis’ preliminary phasing schedule, which includes grading, excavation and site work, building construction, and paving.

Estimated unmitigated construction-related emissions associated with the Facility are shown in Tables 1 and 2 of Appendix A. The existing EIR Mitigation Measure AQ-1e applies to construction emissions. That measure states:

Mitigation Measure AQ-1e: Implement measures to mitigate emissions from construction equipment exhaust. The project [as described in the EIR] will implement additional emissions control measures will include utilizing construction equipment with engines that either meet or exceed USEPA Tier 4 off-road emission standards in at least ninety percent of diesel-powered off-road construction equipment rated greater than 25 horsepower.

With implementation of EIR Mitigation Measure AQ-1e, NOX emissions associated with construction of the Facility would not exceed the SJVAPCD regional significance threshold, as shown in Table 2 of Appendix A, Carbon Zero 1 Project Construction Emissions – Mitigated.

Operations Phase Impacts

The Facility’s operational emissions are described in Appendix A. Operations would also result in 50 employee vehicle round-trips daily, and from 164 heavy-duty haul truck round-trips per day and no rail (all trucks case) to 7 daily truck round trips and 2 daily locomotives delivering and receiving through railcar deliveries. Total criteria pollutant emissions resulting from Facility operations are summarized in Table 3 (Rail & Truck Scenario) and Table 5 (All Truck Scenario) of Appendix A.

As shown in Table 3 and Table 4 of Appendix A, the Facility's long-term annual criteria pollutant emissions that would not individually exceed SJVAPCD's significance thresholds.

Checklist question IIIa: The EIR analyzes the growth associated with the overall Specific Plan project and states that "the proposed Plan would not result in a substantial and unplanned level of growth and associated air quality impacts would therefore be consistent with population and vehicle related emissions projections contained in regional clean air planning efforts and would not conflict with achievement of the control plans aimed at reducing these projected emissions" (DEIR 4.3-26). The EIR estimates that the Specific Plan would create between 827 and 1,654 new jobs. The Facility will create approximately 50 new jobs and is well within this amount. The City's general plan anticipates 2,000,000 square feet of new industrial space that is accounted for in the RAAP Specific Plan and other regional plans. The Facility is well within the regional growth projections used for air quality planning as well as analyzed in the EIR, and therefore does not constitute a change to the project described in the EIR with respect to this threshold.

Checklist question IIIb: The EIR calculates the estimated emissions from traffic associated with substantial increase in daily trips from the overall buildout of the Specific Plan. The EIR also summarizes SJVAPCD significance thresholds for air emissions. The SJVAPCD reviewed the City's analysis contained in the Draft EIR and provided comments to the City on the RAAP Specific Plan Draft EIR that the SJVAPCD believed necessary to ensure that emissions from specific projects built to implement the Specific Plan would not cause significant impacts that are not accounted for the EIR. In response to SJVAPCD's comments, the City adopted SJVAPCD's suggestions and imposed more stringent mitigation measures that are designed to address both the construction and operation emissions of all projects that implement the Specific Plan (FEIR 5-20 to 5-21). The mitigation measures are intended to ensure compliance with both CEQA and SJVAPCD rules and require a project specific air analysis to be performed for both ministerial and discretionary projects prior to the City's issuance of building permits. Since the EIR already determines that emissions from individual projects might be significant and imposes mitigation measures on the individual projects to ensure they are not significant, the Facility is therefore consistent with the project analyzed in the EIR and does not constitute a change.

Checklist question IIIc: The EIR summarizes the SJVAPCD significance thresholds and determines that the impact of emissions from the implementation of the Specific Plan would be significant and unavoidable with respect to traffic and significant with mitigation with respect to operations. In response to comments provided to the City by SJVAPCD, the City imposed more stringent mitigation measures on all projects designed to address both the construction and operation emissions of projects that implement the Specific Plan (FEIR 5-20 to 5-21). The mitigation measures are intended to ensure compliance with both CEQA and SJVAPCD rules and require a project specific analysis to be performed for both ministerial and discretionary projects prior to the City's issuance of building permits. The Facility will be required to comply with any these EIR mitigation measures that are applicable, so it does not represent a change from the project analyzed in the EIR.

Furthermore, the Facility will be required to obtain and comply with SJVAPCD's air permitting rules and regulations, which will ensure that the Facility operations comply with all relevant rules and plans, and that it does not increase emissions beyond the SJVAPCD's levels of significance. The EIR's mitigation measures are intended to apply to all projects, whether or not they require an SJVAPCD permit and whether or not they are ministerial or discretionary. Individual projects such as the Facility that require a permit to construct from SJVAPCD will automatically be required to comply with those mitigation measures and all SJVAPCD rules and regulations through the air permitting process, which provides assurance that such projects will not have significant emissions. Therefore, the Facility does not represent a change to the project analyzed in the EIR and there are no revisions to the EIR necessary or new significant air quality effects with respect to this threshold.

Checklist question IIIId: The EIR analyzes the potential risks to sensitive receptors from additional pollution (DEIR 4.3-33 through 4.3-37). The EIR defines the threshold for a significant impact to sensitive receptors as “an incremental cancer risk of ten excess cases per million at the Maximally Exposed Individual (MEI)” (DEIR 4.3-36). The EIR found that “maximum increased MEI cancer risk for a 70-year exposure was 6.5 in a million” (DEIR 4.3-36), which is less than the threshold of significance so the EIR determined that the potential risk to sensitive receptors would be a less than significant impact. The EIR based its conclusion on an estimated 9,390 new daily vehicle trips associated with implementation of the Specific Plan (DEIR 4.16-24). As detailed above in Table 4 of the Project Description, the worst-case traffic generated by the Facility is approximately 50 new daily employee round trips in and out of the site and 164 daily truck round trips for deliveries of feed stock and other additives as well as distribution of finished product. The Facility’s trip generation is only a fraction of the Specific Plan’s anticipated traffic. Therefore, the Facility does not represent a change to the project analyzed in the EIR.

Checklist question IIIe: The EIR states that odor complaints could be associated with either new activities or with placing new activities next to existing odor sources (DEIR 4.3-37). It concludes that there are no existing odor sources that could generate complaints and did not expect the build out of the Specific Plan to create objectionable odors. The Facility’s feedstock includes vegetable oils and animal fats that could have a potential for odors. As indicated in the Project Description, the Facility will include carbon filters on the vents for tanks holding oils and animal fats. These carbon filters are industry standard for managing potential odors and therefore the Facility is not expected to have objectionable odors based on the planned processes. The build out of the Specific Plan anticipated the construction of many types of industrial facilities, so the Facility is consistent with the project described in the EIR and does not represent a change to the project analyzed in the EIR.

IV. Biological Resources

Biological Resources Checklist Questions

IV. Biological Resources. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	DEIR pp. 4.4-1 to 4.4-28	No	No	No	BIO-1 (FEIR 2-8 to 2-10; MMRP pp. 5 to 7)
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	DEIR pp. 4.4-1 to 4.4-28	No	No	No	No

<p>IV. Biological Resources.</p> <p>Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Information Identify New Significant Impacts?</p>	<p>Environmental Document Mitigation Measures to Address Impacts</p>
<p>c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</p>	<p>DEIR pp. 4.4-1 to 4.4-28</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?</p>	<p>DEIR pp. 4.4-1 to 4.4-28</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>BIO-1 (FEIR 2-8 to 2-10; MMRP pp. 5 to 7)</p>
<p>e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?</p>	<p>DEIR pp. 4.4-1 to 4.4-28</p>	<p>No</p>	<p>No</p>	<p>No</p>	

IV. Biological Resources. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	DEIR PP. 4.4-1 to 4.4-28	No	No	No	No

Checklist question IVa: The EIR determines that while special-status plant and animal species are known to occur within the general vicinity of the RAAP site, existing site conditions make the RAAP site unsuitable for these species. None of the eleven special-status animal species or ten special-status plant species found in the region are known to occupy the site (DEIR 4.4-22). However, the EIR does identify one potentially significant impact in this category related to potential habitat disturbance of one special-status animal species, the Townsend’s western big-eared bat. Abandoned buildings on the RAAP site could offer roosting habitat for Townsend’s big-eared bats that could be affected by demolition activities. Because of this, the EIR determines that this impact is “potentially significant” (DEIR 4.4-24) and the City adopted a mitigation measure (BIO-1) to reduce the effect of abandoned building demolition if the Townsend’s big-eared bat is found onsite during breeding or hibernacula season. This mitigation measure, described in the Final EIR (FEIR 2-9), requires conducting surveys no more than two weeks in advance of any demolition or construction activity involving concrete breaking or similarly noisy or intrusive activities that would commence during the pup-rearing season (April 15 through August 31) or winter hibernacula season (October 15 through March 1, depending on weather conditions). If these surveys, which must be conducted by a “qualified bat biologist”, find bat roosts in the vicinity of the planned activity, certain described steps must be undertaken to protect the bats from disturbance. The City’s EIR findings conclude that the impact is less than significant with these mitigation measures. Because the EIR specifically analyzed the potential future build-out of the site, including possible demolition of existing buildings, the Facility does not include any changes from the project described in the EIR. To the extent building demolition is required for the Facility (although not currently part of the plant design), the Facility will be required to comply with the identified BIO-1 mitigation measure.

Checklist question IVb: The EIR determines that the Specific Plan area does not contain riparian habitat, and as such development on the site will have a less than significant impact on “riparian habitat and sensitive natural community types” (DEIR 4.4-24). This same conclusion applies to all individual projects, including the Facility. Therefore, there are no changes to the project described in the EIR.

Checklist question IVc: The EIR determines that the 1.3 acres of wetlands that exist within the RAAP Site “appear to be isolated depressions as they are not tributary to a ‘navigable waters of the US’” and potentially

exempt from Section 404 of the Clean Water Act (CWA) (DEIR 4.4-24). The EIR determines that the impact of the Specific Plan on these areas would be less than significant. This conclusion applies to individual projects implementing the Specific Plan, including the Facility. The Facility will not be located within the 1.3 acres identified as potential wetlands. Therefore, there are no changes to the project described in the EIR.

Checklist question IVd: The EIR reviews the potential build out of the RAAP site, and states that the stormwater retention ponds onsite will remain in place and the implementation of the Specific Plan would involve development of currently undeveloped ruderal grassland and emergent marsh. The EIR concludes that the overall impact of the implementation of the Specific Plan will be less than significant (DEIR 4.4-24,25). As described in the Project Description, the Facility will include a new stormwater retention pond approximately adjacent to the existing stormwater retention ponds to the east. Therefore, the Facility does not represent a change from the project described in the EIR.

Checklist question IVe: The EIR identified General Plan Policy CONS-5.4 regarding protection of wetlands and CONS-5.7 regarding loss of Swainson's hawk foraging habitat as relevant to this impact category (DEIR 4.4-25). The EIR states that because projects developed on the RAAP Site will be required to comply with applicable General Plan policies, including Riverbank GP policies CONS-5.4 and CONS-5.7 (DEIR 4.4-25), impacts to this resource area will be less than significant. Furthermore, the Facility will be built in a vacant portion with no trees or potential bird habitat, and not within the area where Swainson's hawks would be present. Since the EIR analyzes the build-out of the entire RAAP site, the Facility does not change the project analyzed in the EIR.

Checklist question IVf: The EIR analyzes whether the implementation of the Specific Plan would conflict with the Recovery Plan for Upland Species of San Joaquin Valley (RPUSSJV) (DEIR 4.4-25). The species in the region that are protected under the RPUSSJV include the San Joaquin kit fox, Riparian (San Joaquin Valley) woodrat, and Riparian brush rabbit, but none of these species are known to be present at the RAAP site (DEIR 4.4-25). Current industrial activities on the site make their presence very unlikely. The EIR determines that the Specific Plan would have *no impacts* on any conservation plan. This conclusion also applies generally to all projects implementing the Specific Plan, including the Facility. Therefore, there are no changes to the project described in the EIR.

V. Cultural Resources

Cultural Resources Checklist Questions

V. Cultural Resources. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Cause a substantial adverse change in the significance of a historical resource as defined in § 15064.5?	DEIR pp. 4.5-1 to 4.5-24	No	No	No	CUL-1 (MMRP p. 7).
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	DEIR pp. 4.5-1 to 4.5-24	No	No	No	No
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	DEIR pp. 4.5-1 to 4.5-24	No	No	No	No

Checklist question Va: The RAAP Site is not located within or on any of the sites on the National Register of Historic Places (DEIR 4.5-20). However, the EIR states that parts of the RAAP Site could be eligible for inclusion on the California Register of Historic Resources (CRHR) because it is historically significant at a local level for its role in the area’s industrial past. Demolition of buildings at the RAAP Site might have a potentially significant impact on the local historical character of Riverbank. However, the site’s complex and inconsistent history make it less likely to be considered a historic resource, as discussed on page 4.5-14 of the EIR as follows: “In summary, the property may be eligible to the CRHR for its association with munitions manufacturing, but its association with three wars, change of use, and growth by accretion significantly complicate any such determination. California housed extensive arms manufacturing plants over the same period, making it likely that this plant would be significant only at the local level, if at all.”

The EIR includes a mitigation measure (CUL-1) which would be undertaken if buildings are modified or demolished for the Facility. The mitigation measure is described as follows on page 2-10 of the FEIR: “Prior to the demolition of buildings and structures comprising the eligible district, an Historic American Building Survey/Historic American Engineering Record (HABS/HAER) recordation shall be conducted for the affected

structures. HABS/HAER recordation could include archiving of original plans, undertaking archival research for preparation of a report, making measured drawings, and completing a photographic study of the structures.” The EIR determines that the impact due to the loss of buildings that are currently eligible for inclusion on the CRHR is *significant and unavoidable*, however, no building demolition will be required for the Facility, and it does not change the project described in the EIR.

Checklist question Vb: The Specific Plan describes existing General Plan policies protecting archeological resources (Riverbank GP policies CONS-2.1, CONS-2.2, CONS-2.4, and CONS-2.5, DEIR 4.5-21), and determines that “there are no known archaeological resources in the RAAP Plan Area and a records search of files at the Central California Information Center (CCIC) indicated there are no recorded prehistoric cultural resources in Riverbank” (DEIR 4.5-21). The EIR determines that the impact of the Specific Plan on this category is *less than significant*. Because the Facility will be located on the land which was included in the Specific Plan evaluation, it does not change the project described in the EIR.

Checklist question Vc: The Specific Plan describes existing General Plan policies protecting prehistoric human remains (Riverbank GP policy CONS-2.5, DEIR 4.5-22), and determines that there are no known prehistoric human remains in the vicinity of Riverbank, although it is possible that there are undiscovered remains in the RAAP site area (DEIR 4.5-22). Given that no remains have been discovered at the site, there are no predicted impacts under this threshold, and the existing EIR determines that impacts to this category are *less than significant*. If remains were to be discovered during development of the property, the developer would be required to comply with the California Health and Safety Code and any other relevant regulations described in the EIR (DEIR 4.5-22-23). As the Facility will be located on the same land analyzed in the EIR, the Facility does not change the project described in the EIR.

VI. Energy

Energy Checklist Questions

VI. Energy. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	NA	No	No	No	No
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	NA	No	No	No	No

Energy is a new CEQA Environmental Checklist resource area established in 2019 so this resource area was not previously part of the EIR. Each local land use agency determines its own significance thresholds, and the City of Riverbank has yet to establish specific numeric criteria related to energy resources. As such, the CEQA Guidelines Appendix G Environmental Checklist Form is a primary resource in determining significance to be used for projects within the City’s jurisdiction. The following section presents other applicable federal, state and local regulations and agency guidance connected to energy resources.

Federal Regulations

Corporate Average Fuel Standards

First enacted by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFE) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and United States Environmental Protection Agency (USEPA) jointly administer the CAFE standards. The U.S. Congress has specified that CAFE standards must be set at the “maximum

feasible level” with consideration given for: 1) technological feasibility; 2) economic practicality; 3) effect of other standards on fuel economy; and 4) need for the nation to conserve energy.

Fuel efficiency standards for medium- and heavy-duty trucks have been jointly developed by USEPA and NHTSA. The Phase 1 heavy-duty truck standards apply to combination tractors, heavy-duty pickup trucks and vans, and vocational vehicles for model years 2014 through 2018, and result in a reduction in fuel consumption from 6 to 23 percent over the 2010 baseline, depending on the vehicle type. USEPA and NHTSA have also adopted the Phase 2 heavy-duty truck standards, which cover model years 2021 through 2027 and require the phase-in of a 5 to 25 percent reduction in fuel consumption over the 2017 baseline depending on the compliance year and vehicle type (USEPA and NHTSA, 2016).

Energy Policy Act of 2005

The Energy Policy Act of 2005 addresses energy efficiency; renewable energy requirements; oil, natural gas and coal; alternative-fuel use; tribal energy, nuclear security; vehicles and vehicle fuels; hydropower and geothermal energy; and climate change technology. The act provides revised annual energy reduction goals (two percent per year beginning in 2006), revised renewable energy purchase goals, federal procurement of Energy Star or Federal Energy Management Program designated products, federal green building standards, and fuel cell vehicle and hydrogen energy system research and demonstration.

State Regulations

Assembly Bill 1575 (AB 1575)

In 1975, largely in response to the oil crisis of the 1970s, the California State Legislature adopted Assembly Bill (AB) 1575, which created the California Energy Commission (CEC). The statutory mission of the CEC is to forecast future energy needs, license thermal power plants of 50 megawatts or larger, develop energy technologies and renewable energy resources, plan for and direct state responses to energy emergencies, and, perhaps most importantly, promote energy efficiency through the adoption and enforcement of appliance and building energy efficiency standards. AB 1575 also amended Public Resources Code Section 21100(b)(3) to require Environmental Impact Reports (EIRs) to consider the wasteful, inefficient, and unnecessary consumption of energy resources caused by a project. Since the passage of AB 1575, the California Natural Resources Agency finalized updates to the CEQA Guidelines in December 2018. New CEQA Guidelines Section 15126.2(b) treats “wasteful, inefficient, or unnecessary” energy consumption as a significant environmental impact. As a result, the following energy thresholds have been incorporated into Appendix G of the CEQA Guidelines:

- a) *Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?*
- b) *Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?*

As discussed above, this section has been prepared to assess energy impacts in accordance with the CEQA Appendix G of criteria specific to energy resources.

Senate Bill 1389

Senate Bill (SB) 1389 (Public Resources Code Sections 25300–25323; SB 1389) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state’s electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state’s economy; and protect public health and safety (Public Resources Code Section 25301[a]). The most recent 2020 Integrated Energy Policy Report (the 2021 Report remains in draft form pending finalization by the CEC) provides the results of the CEC’s assessments of a variety of energy issues facing California, including energy

efficiency, California's transition to zero-emission vehicles (ZEVs), transportation, microgrids, and repercussions of several recent events including the COVID-19 pandemic, electricity outages, and statewide wildfires. The 2020 Report also provides updates on trends in California's sources of crude oil, update on California's nuclear plants, and other energy issues.

Senate Bill 350

SB 350 was approved on October 7, 2015. SB 350 will: 1) increase the standards of the California Renewables Portfolio Standard (RPS) program by requiring that the amount of electricity generated and sold to retail customers per year from eligible renewable energy resources be increased to 50 percent by December 31, 2030; 2) require the State Energy Resources Conservation and Development Commission to establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end uses of retail customers by January 1, 2030; 3) provide for the evolution of the Independent System Operator into a regional organization; and 4) require the state to reimburse local agencies and school districts for certain costs mandated by the state through procedures established by statutory provisions. Among other objectives, the State legislature intends to double the energy efficiency savings in electricity and natural gas final end uses of retail customers through energy efficiency and conservation.

Local Regulations

City of Riverbank General Plan

The City of Riverbank's General Plan (April 2009) addresses energy in its design, conservation and open space, public services & facilities, and air quality sections. While the majority of the General Plan policies related to energy are general in nature and not specific, the following goals and policies are potentially applicable to the project:

- ▶ **Goal DESIGN-18:** Renewable Resource Use and Energy-Efficiency In Site and Architectural Design
 - *Policy DESIGN-18.2:* The City will encourage passive and natural lighting systems in architectural design to conserve electricity.
- ▶ **Goal CONS-8:** Minimize the Use of Energy through Sustainable Development Patterns, Construction Practices, and Construction Materials
 - *Policy CONS-8.2:* The City will encourage material and energy-efficient building design, including strategies certified by the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Program.
 - *Policy CONS-8.3:* The City will encourage the incorporation of energy conservation features in the design of all new construction and the installation of conservation devices in existing development.
- ▶ **Goal PUBLIC-6:** Adequate Public Utilities, Including Gas, Electric, Telecommunications and Other Utility Services
 - *Policy PUBLIC-6.3:* The City will require the demonstration of adequate energy supply through a will-serve letter from the appropriate energy service provider prior to approval of new or expanded structures that have the potential for significant energy use.
 - *Policy PUBLIC-6.4:* The City will require that gas, electrical, and communications lines be installed underground as a part of new development, wherever possible.
 - *Policy PUBLIC-6.5:* New development projects shall include landscaping methods, materials, and design to conserve energy and water.
- ▶ **Goal AIR-2:** Construction Practices and Materials Used in Riverbank Minimize Direct and Indirect Air Pollutant Emissions
 - *Policy AIR-2.5:* The City of Riverbank will require new residential, commercial, and industrial development to reduce air quality impacts from area sources and from energy consumption.

Facility Operations Energy Consumption

The Facility’s energy consumption is evaluated based on the following three (3) sources: fuel use from associated diesel and gasoline vehicle activity (i.e., transportation sources), natural gas usage, and electricity consumption. As discussed, operations of the Carbon Zero 1 Project Facility’s will consume energy resources that are quantified and evaluated in this section.

The primary sources of the Facility operations’ fuel energy consumption (diesel and gasoline) would come from on-road vehicular traffic (i.e., delivery trucks, rail, passenger vehicles) during operations, and equipment used during fuel production (e.g., boilers, heaters). Construction is not included in the energy consumption analysis as the construction activities will be temporarily occurring over a short period of time. Within the CalEEMod model run, which forms the basis of this energy analysis, default values were used to quantify the associated trip lengths for the various trip types, among other parameters described in the appendices of the CalEEMod User Guide.

The operations on-road operational vehicle trip fuel usage is calculated using the default vehicle trip distance/distribution from the CalEEMod model run for each trip type. Using this data, along with the fleet average miles per gallon rates, Table 8 presents the annual fuel usage resulting from on-road vehicles activity during the operations of the Facility. The truck trip lengths are from the actual travel distances between Riverbank and the Port of Oakland for inbound truck trips delivering feed stock and other materials, and between Riverbank and San Francisco Airport (SFO) for outbound truck trips distributing RD and SAF finished products.

Table 8 Operations Worst-Case Vehicle Annual Fuel Usage – All Trucks

Activity	Daily Round Trips	One Way Trip Length (mi)	Daily VMT	Annual VMT	Annual Fuel Usage (gal)
Inbound Truck Trips	89	86	15,308	3,980,080	612,320
Outbound Truck Trips	75	96	14,400	3,744,000	576,000
Employee Trips	50	16.8	1,680	613,200	27,873
Total Summary			28,160	7,498,076	1,216,193

- a. Truck average miles per gallon rates from “A Survey of Fuel Economy and Fuel Usage by Heavy Duty Truck Fleets” by Schoettle et. al (2016).
- b. Passenger vehicle miles per gallon rates from US Bureau of Transportation Statistics (2019).

As discussed in the Project Description, Traffic Summary, Facility operations could also include use of rail for receiving feed stock and distributing the finished product. This would reduce the number of truck trips and therefore the annual VMT and annual fuel usage. Table 9 presents the annual fuel usage resulting from a mix of rail and trucks activity during the Facility’s operations phase using this data, along with the average miles per gallon rates for rail.

The Facility’s rail operational fuel usage is based on the off-site distance and onsite circulation distance of 33 rail cars per day split between 16 inbound rail cars (with one locomotive) delivering feed stock and 17 outbound rail cars (with one locomotive) distributing finished product to SFO. The off-site rail trip lengths are from the actual travel distances between Riverbank and the Port of Oakland for inbound rail cars delivering feed stock, and between Riverbank and SFO for outbound rail car trips distributing RD and SAF finished products to SFO. Although there are 16 to 17 rail cars per delivery, each delivery represents one locomotive

and therefore fuel usage estimates are based on the number of locomotives. The onsite circulation distance is estimated to be 0.5 miles.

Table 9 Operations Rail and Truck Annual Fuel Usage

Activity	Daily Round Trips	One Way Trip Length (mi)	Daily VMT	Annual VMT	Annual Fuel Usage (gal)
Inbound Truck Trips	2	86	384	99,916	15,372
Outbound Truck Trips	4	96	768	199,680	30,720
Employee Trips	50	16.8	1,680	613,200	27,873
Onsite Rail Circulation	2	0.5	1	260	1,857
Inbound Rail Off-site	1	86	86	22,360	159,714
Outbound Rail Off-site	1	96	96	24,960	178,286
Total Summary			3,015	960,376	413,821

a. Rail miles per gallon rates from US Bureau of Transportation Statistics (2019). The fuel consumption rate for off-site travel and onsite circulation was assumed to be the same.

Additional sources of energy consumption include electricity and natural gas, as presented in Table 10. The natural gas and electricity usage for fuel production are estimated based on the Facility’s engineering design data.

Table 10 Operations Gas and Electricity Usage

Utility	Usage	Source	Annual Usage Estimates
Natural Gas	3.29 mmscf/day	PG&E	1,200mmscf
Electricity	15 MW	SFPUC and PG&E	131,400 MWh

a. Natural gas and electricity usage from administrative buildings, sanitary systems, parking lots, and warehouses is assumed to be de minimis.

Checklist question VIa: As discussed above, energy use associated with the Facility would be consumed in the form of fuel (diesel and gasoline), electricity, and natural gas.

The equipment and vehicles used by workers and vendors would be subject to increasingly stringent federal and state fuel efficiency standards, which would minimize the potential for inefficient fuel usage. The Facility would be required to comply with the provisions of 13 CCR Sections 2449 and 2485, which prohibit diesel-fueled commercial motor vehicles and off-road diesel vehicles from idling for more than five minutes. Heavy equipment would also be subject to the USEPA Construction Equipment Fuel Efficiency Standard (40 Code of Federal Regulations Parts 1039, 1065, and 1068) and CARB’s Assembly Bill (AB) 1493 (i.e., Pavley) regulations, which would also minimize inefficient fuel consumption and ensure that the fuel efficiency of equipment and vehicles operating on- and off-site would continue to improve over time. The Facility will also be constructed consistent with applicable CALGreen Building Code and Title 24 which would also reduce consumption from area and energy sources. Compliance with applicable state and local requirements as described above will

ensure that the Facility does not result in wasteful, inefficient, or unnecessary consumption of energy resources.

Compliance with local, state, and federal regulations would reduce short-term energy demand during the Facility construction to the extent feasible, and therefore, construction would not result in a wasteful or inefficient use of energy. The Facility operations will also use energy resources and for on-road vehicles. As shown in Table 9, the Facility's operational worst-case fuel resource consumption is estimated to be 27,873 gallons per year of gasoline for employee vehicles and 1,188,320 gallons of diesel for truck deliveries. The CEC's Retail Fuel Outlet Annual Reporting (A-15) Results show that approximately 39 million gallons of diesel and 197 million gallons of gasoline was sold in Stanislaus County in 2020. The Facility operations would represent 3 percent of total annual diesel fuel consumption and 0.014 percent of total annual gasoline fuel consumption from 2020 within the County.

Similarly, as shown in Table 10, the Facility operational electricity and natural gas consumption is estimated to be 131,400 MWh and 1,200.85 mmscf per year respectively. Per the CEC's most recent energy report, specifically the most recent "Electricity Consumption by County" and "Natural Gas Consumption by County" 2020 data sets for Stanislaus, non-residential sector operations consumed an estimated 3 billion kWh and 136 million therms (approximately 13,000 mmscf) total in 2020. Compared to the CEC's 2020 County-wide data set, the Facility's estimated increase in electricity and natural gas consumption would constitute approximate 4.3 percent and 9.08 percent, respectively, of total annual 2020 consumption within the County. Because the Facility is creating new supplies of RD and SAF, these activities would not have a substantial effect on the local and regional fuel energy supplies and availability. Furthermore, General Plan policies PUBLIC-6.3 and PUBLIC-6.5 would ensure that the Facility has adequate energy supply and implements energy efficient design as applicable. As discussed in the Project Description, Aemetis has obtained a will-serve letter from Pacific Gas & Electric per Policy PUBLIC-6.3 to ensure adequate fuel supplies and availability.

For these reasons, the construction and operation of Facility will not result in wasteful, inefficient, or unnecessary consumption of energy resources and therefore, the potential impacts to energy resources will be less than significant. Section 6 of the EIR acknowledges that development of the Plan will require nonrenewable resources and states that commitment of nonrenewable resources such as electric and gas service would not be large due to inclusion of energy-conserving Plan features, compliance with applicable standards and regulations, and implementation of mitigation measures.

Checklist question VIb: As discussed above, the City of Riverbank has not yet set a specific threshold of significance for energy impacts. At this time, other than the generalized policies found within the General Plan, the City has not adopted local programs or policies that support energy efficiency and/or sustainability that would apply to the Facility. In accordance with the City's General Plan goals and policies, the Facility would implement energy efficiency and conservation measures as applicable.

The State of California's Energy Efficiency Strategic Plan (adopted 2008, updated January 2011) outlines specific goals and strategies to help promote energy efficiency in California's industrial sector in three (3) areas: 1) Support industry adoption of energy efficiency by integrating energy efficiency savings with achievement of GHG goals; 2) Build market value of and demand for energy efficiency; and 3) Provide technical and public policy guidance for resource efficiency. The Energy Efficiency Strategic Plan promotes reductions in energy consumption through compliance with greenhouse gas (GHG) emission reductions, water conservation, and proper waste disposal.

The anticipated mobile equipment and vehicles would comply with federal, state, and regional efficiency requirements where applicable. Specifically, the USEPA and the NHTSA have adopted fuel efficiency standards

for medium- and heavy-duty trucks which apply to truck fleet operators, such as the applicant. CARB has also adopted cleaner technology and fuel standards pursuant to AB 1493. While Phase 1 and Phase 2 regulation published by both the USEPA/NHTSA and CARB primarily apply to manufacturers of on-road vehicles and not the end user, the Facility operator and off-site vendors will ensure engines purchased are certified in accordance with the appropriate state and federal regulations. Due to federal and state standards, energy efficiency of mobile equipment and vehicles will continue to improve over time through compliance with increasingly stringent standards adopted by regulatory agencies.

The primary purpose of the Facility is to produce low carbon RD and SAF. This will advance local and state plans for increasing renewable energy and energy efficiency. The Facility’s construction and operations activities would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. Therefore, the proposed Facility’s impacts are less than significant.

VII. Geology and Soils

Geology and Soils Checklist Questions

VII. Geology and Soils. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No

VII. Geology and Soils. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42 .	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No
ii) Strong seismic ground shaking?	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No
iii) Seismic-related ground failure, including liquefaction?	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No
iv) Landslides?	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No
b) Result in substantial soil erosion or the loss of topsoil?	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No

VII. Geology and Soils. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No
d) Be located on expansive soil , as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	DEIR pp. 4.6-1 to 4.6-20	No	No	No	No
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	DEIR pp. 4.5-1 to 4.5-24 and pp. 4.6-1 to 4.6-20	No	No	No	No

Checklist question VIIa:

(i) Rupture of a Known Earthquake Fault - As stated in the EIR, "the RAAP is not located within an Alquist-Priolo Earthquake Fault Zone and is not located on an active fault as designated by the California Geological Survey (CGS). The Specific Plan Area is located more than 70 miles to the east of both the San Andreas and Hayward Faults, the two most prominent fault lines in the region, and approximately 37 miles northeast of the Ortigalita Fault. Therefore, the Specific Plan area is not considered susceptible to the risk of loss, damage, or death involving fault rupture. Associated potential impacts would be *less than significant*" (DEIR 4.6-16). Because the Facility will be located on the same land, the same determination applies and there are no changes to the project described in the EIR.

(ii) Strong Seismic Ground Shaking - The Specific Plan determines that impacts to seismic ground shaking are less than significant. Seismic ground shaking is possible at the site in the event of a major earthquake, but the Facility will be required to comply with the guidelines of the California Building Code and the Riverbank Municipal Code that pertain to building safety, as described in the EIR. The Facility will be located on the same land; therefore, there are no changes to the project described in the EIR.

(iii) Liquefaction - As stated in the Specific Plan, "Alluvial soils in the Plan Area can potentially become saturated when the groundwater table is high, which increases their susceptibility to liquefaction during a seismic event. However, the California Building Code, applicable in Riverbank pursuant to General Plan Policy SAFE-1.2, establishes standards for seismic design, foundations, and drainage. Continued implementation of this policy and compliance with State of California uniform codes would ensure that the risk of loss, damage, or death from seismic related ground failure is *less than significant*" (DEIR 4.6-17). The Facility will comply with these existing standards described in the Specific Plan that pertain to seismic-related ground failure, including liquefaction. Because the Facility will be located on the land analyzed in the EIR, there is no change to the project described in the EIR.

(iv) Landslide - As stated in the Specific Plan, "The terrain of the Plan Area slopes to the southwest at a rate of 25 feet per mile, and given this relatively flat topography, there would be *no impact* associated with landslides and slope instability" (DEIR 4.6-17). Because the Facility will be located on the same land analyzed in the EIR, there is no change to the project described in the EIR.

Checklist question VIIb: The Specific Plan discusses the effect that building activity on the site could have on erosion; however, all construction activities must be compliant with Building Code Provisions in order to minimize erosion. The Specific Plan also discusses construction activities creating new impervious areas, which may increase stormwater runoff, and therefore erosion. The Specific Plan also described General Plan Policy PUB-23 (Riverbank GP policy PUB-23, DEIR 4.6-18) which is intended to promote "green" infrastructure where possible. The EIR determines that, with these standards in mind, the impact on this category is less than significant. The Facility is located on the same land and is located in an area of the Specific Plan already designated for construction and evaluated as if covered with hard surfaces in the EIR. Therefore, the Facility does not change the project described in the EIR.

Checklist question VIIc: As stated in the DEIR, "Land subsidence is not characteristic of soils in Riverbank and the Plan Area." (DEIR 4.6-18). The EIR concludes development on the RAAP site would have a *less-than-significant* impact related to geologically unstable soils. The Facility is located on the same property analyzed in the EIR so will result in no changes to the project described in the EIR.

Checklist question VIId: The EIR determines there will be a less than significant impacts due to expansive soils because of the city's preexisting regulations. Although there are soils onsite with expansive

characteristics, there are rules and regulations in place (Title XV, Chapter 155 in the Riverbank Municipal Code and General Plan Policies SAFE-1.2, SAFE-1.11, and SAFE-1.12) that apply to development at the RAAP site on site throughout construction. Since the Facility is located on the same land analyzed in the EIR and the Facility will be subject to the City’s Municipal Code and General Plan policies, there is no change to the project described in the EIR.

Checklist question VIIe: Because “the site is served by the City of Riverbank Public Works Department Sewer Division and its wastewater facilities” (DEIR 4.6-19), the EIR determines there will be no impact to soils from sanitary waste disposal caused by development of the RAAP site. The Facility will also use the existing sanitary sewer as well as manage its own industrial wastewater onsite, so it does not change the project described in the EIR.

Checklist question VIIf: The Specific Plan describes existing General Plan policies protecting paleontological resources (Riverbank GP policy CONS-2.1, DEIR 4.5-22), and determines that “there are no known paleontological resources in the RAAP Site and a records search of files at the CCIC indicated there are no recorded prehistoric cultural resources in Riverbank” (DEIR 4.5-22). For this reason, the EIR determines that the Specific Plan would have a *less than significant impact* on paleontological resources or geologic features. This analysis was conducted for the same land on which the Facility will be located; therefore, the Facility does not change the project analyzed in the EIR.

VIII. Greenhouse Gas Emissions

Greenhouse Gas Emissions Checklist Questions

<p>VIII. Greenhouse Gas Emissions.</p> <p>Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Important Information Identify New Significant Impacts?</p>	<p>Environmental Document Mitigation Measures to Address Impacts</p>
<p>a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</p>	<p>DEIR pp. 4.7-1 to 4.7-18</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>FEIR Mitigation Measure GHG-1 (FEIR 2-10; MMRP p. 8)</p>

VIII. Greenhouse Gas Emissions. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	DEIR pp. 4.7-1 to 4.7-18	No	No	No	No

Appendix B includes a Greenhouse Gas (GHG) technical memo prepared by GeoSyntec which presents GHG emissions estimates for construction and operations for the Facility.

Checklist question VIIIa: The EIR states that emissions of greenhouse gases would be considered significant if the projects implementing the Specific Plan do not adhere to Best Performance Standards (BPS) established by the San Joaquin Valley Air Pollution Control District or, if this is not possible, do not achieve a 29% GHG emission reduction compared to Business as Usual (BAU) (based on the GHG emission reduction targets established in the California Air Resources Board’s AB 32 Scoping Plan). The EIR determines that greenhouse gas emissions from implementing the Specific Plan will be significant and unavoidable, either because they could not be accurately predicted at the time of the EIR, or because they do not reflect sufficient reductions from BAU. Due to this finding of significance, the City adopted mitigation measure GHG-1 to require individual projects to “document, to the City’s reasonable satisfaction, its compliance with this mitigation measure” (FEIR 2-10) requiring implementation of BPS or a 29% reduction in GHGs compared to BAU “prior to issuance of building permits” for the project (see MMRP, p.8).

The EIR determines that individual projects could increase emissions of GHG that would be significant without mitigation, and subjects them to a mitigation measure to be implemented when the city issues building permits. Therefore, any individual project at the RAAP site that would have increased GHG emissions is consistent with the project described in the EIR and does not represent a change or a new impact.

More importantly, the Facility is designed for the purpose of producing a transportation fuel with a low carbon intensity that will help California meet its Low Carbon Fuel Standard (LCFS) for transportation fuels and meet greenhouse gas emission reduction targets, including the 29% reduction target. As discussed above, the LCFS program calculates the average CI of all transportation fuels used in the State and requires the average CI to achieve a certain reduction below baseline fuels. Fuels with a CI lower than the state requirement level help the state meet its CI target. The CI of a fuel is calculated based on “lifecycle” emissions, which include all GHG emissions associated with a fuel, including emissions from feedstock production, transportation, the plant production process, and the use of the fuel. Therefore, a fuel with a low CI necessarily reduces overall

greenhouse gas emissions. Therefore, the Facility does not represent a change from the project described in the EIR.

Checklist question VIIIb: All future projects, including the Facility, in the Specific Plan Area are “subject to any new requirements under rule making developed at the State and local level regarding GHG emissions and will be subject to local policies that may affect emissions of GHGs” (DEIR 4.7-17). The Facility does not represent a change in the project described in the EIR with respect to this standard.

IX. Hazards & Hazardous Materials

Hazards & Hazardous Materials Checklist Questions

<p>IX. Hazards & Hazardous Materials.</p> <p>Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Important Information Identify New Significant Impacts?</p>	<p>Environmental Document Mitigation Measures to Address Impacts</p>
<p>a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</p>	<p>DEIR pp. 4.9-1 to 4.9-18</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</p>	<p>DEIR pp. 4.9-1 to 4.9-18</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>

IX. Hazards & Hazardous Materials. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	DEIR pp. 4.9-1 to 4.9-18	No	No	No	No
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	DEIR pp. 4.9-1 to 4.9-18	No	No	No	No
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	DEIR pp. 4.9-1 to 4.9-18	No	No	No	No

IX. Hazards & Hazardous Materials. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	DEIR pp. 4.9-1 to 4.9-18	No	No	No	No
g) Expose people or structures to a significant risk of loss, injury or death involving wildland fires?	DEIR pp. 4.9-1 to 4.9-18	No	No	No	No

The Facility will use hazardous materials to support the production of RD and SAF, such as sodium hydroxide, sulfiding agent, hydrochloric acid, and ammonia (refer to Project Description). The Facility will also produce wastes that may be hazardous such as sludge from wastewater treatment, spent clay, and waste oils. Hazardous materials and hazardous wastes will be transported, managed, and stored according to the applicable regulations and General Plan policies. The management of these hazardous materials as inputs or as hazardous wastes are governed by the Certified Unified Program Agency (CUPA) program, the California Accidental Release Prevention Program, and the Spill Prevention, Control, and Countermeasure (SPCC) Program.

Checklist question IXa: The EIR states that development of the RAAP site will increase the use of hazardous materials used and wastes generated at the RAAP set (DEIR 4.9-13). The EIR describes existing guidelines that ensure safe handling according to local, state, and federal safety standards of hazardous materials that will apply to all projects onsite and describes existing General Plan Policies that contain additional safety standards (Riverbank GP policy SAFE-1.8 and SAFE-1.10, DEIR 4.9-14). The EIR determines that the impact of RAAP site development that increases the presence of hazardous materials that is in compliance with applicable safety standards will be *less than significant*. The Facility is consistent with the project and activities in the Specific Plan and therefore does not represent a change.

Checklist question IXb: The EIR states that development in the Specific Plan area could increase the amount of accidents involving hazardous materials (DEIR 4.9-14). It also states that existing and future projects on the RAAP site would be required to comply with federal, State, and local regulations regarding the handling, disposal, and clean-up of hazardous materials” (DEIR 4.9-14) as well as General Plan Policies CONS-6.2, SAFE-1.8, SAFE-1.9, and SAFE-1.10 (Riverbank GP policy CONS-6.2, SAFE-1.8, 1.9 and 1.10, DEIR 4.9-

14), and determines that the impacts of the anticipated industrial development under this standard will be less than significant. The Facility is consistent with the project analyzed in the EIR.

Checklist question IXc: The EIR states that there are no existing or proposed schools within one-quarter mile of the RAAP site (DEIR 4.9-15), so there is no impact under this standard. The Facility will be located within the same land analyzed in the EIR, so it does not change the project analyzed in the EIR.

Checklist question IXd: The RAAP site contains known hazardous materials sites that “are either monitored and/or under active remediation by government agencies, or remediation activities have been completed” (DEIR 4.9-15). The EIR also analyzes hazardous materials such as asbestos in existing buildings at the RAAP. The EIR states that the Specific Plan includes a stipulation that any such materials will be “fully disclosed, analyzed, and mitigated” (DEIR 4.9-16) according to General Plan policy SAFE-1.10, which requires the City to review all development plans on a project-by project basis and set appropriate restrictions pertaining to hazardous materials. After a full analysis of the existing conditions and the planned development, the EIR determines that impacts under this standard are less than significant. Because the Facility would be consistent with the development and standards reviewed in the EIR, it does not represent a change from the project described in the EIR.

Checklist question IXe: As stated in the DEIR, “the RAAP site is located approximately 1.2 miles from the Peterson Airport, a privately owned airport located at 5800 Langworth Road. The RAAP site is not located within an established land use plan for an airport, nor is it located within close proximity to the runway. As result, the conflicts between aircraft and people and structures on the ground would not result in safety hazards” (DEIR 4.9-17). The EIR determines the impact under this standard to be less than significant. As the Facility will be located on this same land, it does not represent a change from the project described in the EIR.

Checklist question IXf: The DEIR identifies the emergency plan for the failure of the New Melones Dam as the only emergency response/evacuation plan relevant to the RAAP site. This plan includes the following: “If failure of the New Melones Dam were to occur, the City of Riverbank evacuation routes would be to the southeast toward higher ground, with the primary evacuation routes along Terminal/Santa Fe and Claus Road towards Empire and Waterford. Although the RAAP Specific Plan proposes to modify the visual character of Claus Road, vehicle travel would not be hindered or obstructed, and would not impair implementation of or physically interfere with the Stanislaus County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP). As a result, a less-than-significant impact would occur” (DEIR 4.9-17). The Facility will not alter or obstruct vehicle traffic on Claus Road, so it does not represent a change to the project described in the EIR.

Checklist question IXg: The DEIR states that no areas within the site are defined as “Very High Fire Hazard Severity” (DEIR 4.9-18) for wildland fires, and all new development would comply as required by law with California Building Code, California Fire Code, and any other applicable state and local fire safety requirements. Because of these factors, the EIR determines that impact of buildout of the Specific Plan under this standard is *less than significant*. The Facility is located within the plan area evaluated for development and does not represent a change to the project described in the EIR.

X. Hydrology / Water Quality

Hydrology / Water Quality Checklist Questions

X. Hydrology / Water Quality. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	DEIR pp. 4.10-1 to 4.10-14	No	No	No	No
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	DEIR pp. 4.10-1 to 4.10-14	No	No	No	No
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	DEIR pp. 4.10-1 to 4.10-14	No	No	No	No

X. Hydrology / Water Quality. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
i) result in substantial erosion or siltation on- or off-site;	DEIR pp. 4.10-1 to 4.10-14	No	No	No	No
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	DEIR pp. 4.10-1 to 4.10-14	No	No	No	No
iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	DEIR pp. 4.10-1 to 4.10-14	No	No	No	No
iv) impede or redirect flood flows?	DEIR pp. 4.10-1 to 4.10-14	No	No	No	No
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	DEIR pp. 4.10-1 to 4.10-14	No	No	No	No

X. Hydrology / Water Quality. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	DEIR pp. 4.17-12-4.17-25	No	No	No	No

As described in the Project Description, the Facility includes a wastewater treatment system designed for zero-liquid discharge. All wastewater will be treated onsite and reused as process water. Any additional water needs will be supplied by onsite wells. The Facility will require 300 gpm of water supply, and approximately 60 gpm estimated to be supplied by treated wastewater. The Facility's stormwater will be retained in a new stormwater retention pond located to the east of the existing stormwater ponds located on Parcel B of the RAAP site and will be recycled for reuse onsite.

Checklist question Xa: As stated in the EIR, "for all future projects in the Plan Area before the approval of grading permits, a project applicant would be required to consult with the City, the State Water Resources Control Board (SWRCB), and the Central Valley Regional Water Quality Control Board (RWQCB) to acquire the appropriate regulatory approvals that may be necessary to obtain Section 401 water quality certification, an SWRCB statewide NPDES stormwater permit for general construction activity, and any other necessary site-specific Waste Discharge Requirements (WDRs) or waivers under the Porter-Cologne Act" (DEIR 4.10-9). The impact under this standard is determined to be *less than significant* in the EIR. The Facility will not include any direct discharges to water bodies, as stormwater and process wastewater will be retained and treated onsite, and sanitary wastewater will be discharged to the City sewer system. In addition, the Facility would be required to comply with applicable water quality standards and/or waste discharge requirements, if any are applicable, and so it does not represent any changes to the project described in the EIR.

Checklist question Xb: A water survey conducted for the EIR determines that there is sufficient groundwater to serve future development at the RIC, which is expected to continue sourcing its water from onsite wells. Additionally, the DEIR states that "the Urban Water Management Plan (UWMP) determined that sufficient groundwater supply is available to supply future growth within the City, including the Plan Area". The UWMP did not evaluate the use of RIC wells, but growth in the Plan Area was assumed when evaluating projected water demand. As described in the EIR, all future developments will rely on onsite wells and on the City of Riverbank's Water Division for its water needs. If a development proposal were to exceed the capacity of the RIC wells, the UWMP states that the City will be able to supply enough water in the Plan Area. The City of Riverbank's water is supplied from wells located throughout the City. These wells are monitored and maintained by the City. The EIR determines the impact to groundwater resources due to the City's availability of groundwater supply and availability of water from onsite wells to be *less than significant*. Because the

Facility will source its water from RIC wells as described in the EIR and will be required to follow city water use policies, it does not change the project described in the EIR.

Checklist question Xc: The RAAP Site is generally level and does not contain river or stream beds. The EIR determines that impacts under this standard generally from build out of the entire Specific Plan, including both the open areas and the currently industrialized areas, will be *less than significant*, principally due to the topography of the site as well as existing regulatory standards and approval requirements applicable to all development imposed by the City, the SWRCB, and the Central Valley RWQCB. The Facility will include the construction of a new stormwater retention pond to capture all stormwater onsite. The Facility will be located within the area already analyzed in the EIR, so it does not represent a change to the project described in the EIR. There would be no change in on- or offsite erosion, surface runoff, exceed the capacity of (existing and proposed) stormwater drainage systems, or in flood flows from the project evaluated in the EIR.

Checklist question Xd: According to the EIR, “the RAAP site is not located within the 100-year floodplain” (DEIR 4.10-12) and is therefore very unlikely to be impacted by a flood. The EIR also analyzes the potential failure of the New Melones Dam, stating that it “would result in the inundation of the City of Riverbank [and] property damage”, but concludes that the risk of a dam failure is small. The EIR also analyzes risk of tsunamis or seiche stating that “the RAAP site is not located adjacent to a large body of water that would result in a risk of tsunamis or seiche. Furthermore, given the RAAP site’s flat topography, mudflows could not occur” (DEIR 4.10-13). Therefore, the EIR determines that the impact under this standard is *less than significant*. As the Facility will be located on this same land, it does not change the project described in the EIR.

Checklist question Xe: As stated in the EIR on pages 4.17-12 through 4.17-251 and described above, all projects implemented at the RAAP site, including the Facility, will be required to comply with rules of various regulatory agencies that require valid grading and water discharge permits. Additionally, the Facility will include the construction of an additional stormwater retention pond to meet the necessary stormwater retention capacity. Therefore, the EIR determines that impacts under this standard will be less than significant. The Facility does not represent a change from the project described in the EIR.

XI. Land Use / Planning

Land Use / Planning Checklist Questions

XI. Land Use / Planning. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Physically divide an established community?	DEIR pp. 4.11-1 to 4.11-12	No	No	No	No

XI. Land Use / Planning. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	DEIR pp. 4.11-1 to 4.11-12	No	No	No	No

Checklist question XIa: As stated in the EIR, “the proposed Plan would involve the redevelopment of the Plan Area entirely within its current boundaries. Therefore, buildout of the Plan would not divide an established community and impacts would be less than significant” (DEIR 4.11-8). As the Facility will be located on this same area of land, it creates no changes to the project analyzed in EIR.

Checklist question XIb: The RAAP Specific Plan describes the zoning designations within the RAAP. The RAAP Specific Plan states that the zoning designations in the Specific Plan supersede the zoning designations in the General Plan and the City of Riverbank Zoning Ordinance (SP page 7). For these reasons, the EIR anticipates a less than significant impact under this standard for projects consistent with the zoning.

As stated in the EIR, “the industrial uses currently on the RAAP site contrast markedly with the surrounding residential and semi-agricultural uses. While buildout of the Plan would generally represent a continuation of existing uses, the contrast of industrial activity with surrounding uses would remain” (DEIR 4.11-11). The EIR further says that “the implementation of design features” like landscaped buffers would help to create a transition between the industrial nature of the site and the uses surrounding it. For these reasons, the EIR determines that the impacts under this standard are less than significant.

XII. Mineral Resources

Mineral Resources Checklist Questions

XII. Mineral Resources. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	DEIR pp. 4.8-1 to 4.8-7	No	No	No	No
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	DEIR pp. 4.8-1 to 4.8-7	No	No	No	No

Checklist question XIIa: The EIR states that the RAAP site “is already largely developed and surrounded by land uses incompatible with mining activities” (DEIR 4.8-5). Given the limited mineral resources that exist at the site and in the surrounding region, it is very unlikely that any future mineral extraction would occur. The EIR determines that the impact from buildout of project onsite is *less than significant*. Since the Facility will be part of the buildout described in the EIR and located on the same land, it does not represent a change to the project described in the EIR.

Checklist question XIIb: According to the EIR, there are no mines in the RAAP Site, and the site is “largely incompatible with mining activities” (DEIR 4.8-6), making any mineral extraction unlikely. Therefore, the EIR determines that the impact from development of any project onsite would be *less than significant*. The Facility is part of the buildout described in the Specific Plan and will be located in an area of the RAAP site that was previously evaluated for industrial/R&D development. Therefore, the Facility does not represent a change to the project described in the EIR.

XIII. Noise

Noise Checklist Questions

XIII. Noise. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	DEIR pp. 4.12-1 to 4.12-37	No	No	No	Mitigation Measure NOISE-1 (FEIR pp 2-11 to 2-13; MMRP pp. 8 to 9)
b) Generation of excessive groundborne vibration or groundborne noise levels?	DEIR pp. 4.12-1 to 4.12-37	No	No	No	No

XIII. Noise. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	DEIR pp. 4.12-1 to 4.12-37	No	No	No	Mitigation Measures NOISE-2, and NOISE-4 (FEIR pp 2-11 to 2-13; MMRP pp. 9, 11)

Checklist question XIIIa: The EIR finds a significant impact from added noise due to site development, stating that: “The nearest residential land uses are 110 feet west of the plan area, across Claus Road. Noise levels resulting from onsite activities may exceed City standards for stationary noise sources at nearby residential receivers if the noise generated by such uses are not regulated or adequately mitigated” (DEIR 4.12-23). This represents a *significant impact* before mitigation. In order to mitigate this impact, the EIR includes mitigation measure NOISE-1 (RAAP Specific Plan DEIR 4.12-32), which includes measures intended to limit noise pollution at residential receptors. The Facility will be subject to these mitigation measures, and therefore does not represent a change from the project described in the EIR.

The EIR (pages 4.12-26-27) analyzes the expected increase in ambient noise from increased traffic created by the development of the RAAP site and determines that the impact would be significant. The EIR therefore includes mitigation measure NOISE-2 to require design strategies to be implemented on a project-by-project basis to address noise from transportation. Mitigation measure NOISE-4, which has the same conditions as NOISE-2, is targeted at the impact of increased traffic from development in the Specific Plan area and other parts of the City of Riverbank. Even with these mitigation measures in place, the City determined that the impacts are anticipated to be *significant and unavoidable* because “it may not be reasonable or feasible to reduce project-generated traffic noise at all receivers” in all areas experiencing development (DEIR 4.12-35). The level of traffic analyzed by the EIR is higher than the volume of traffic that will be generated by the Facility. In addition, the City already determined that the overall impact of traffic from the implementation of the Specific Plan will be significant and imposed appropriate mitigation measures. Therefore, the Facility does not represent a change from the project described in the EIR.

The EIR states that, as would be the case with any industrial construction projects, there will be noise generated during the time of construction. The EIR includes mitigation measure NOISE-3 on page 4.12-36, which outlines the most straightforward methods of reducing construction-related noise-- "limiting the hours when construction can occur to daytime hours" and "controls such as constructing temporary noise barriers and utilizing "quiet" construction equipment". With this mitigation measure in place, the EIR anticipates a less than significant impact under this standard. The EIR already determines that construction noise could be significant and implements appropriate mitigation measures. Therefore, the Facility does not represent a change from the project described in the EIR.

Checklist question XIIIb: The EIR determines that construction activities can produce perceptible levels of vibration and ground borne noise at the site, stating that: "Construction activities may extend over several construction seasons, but construction vibration would not be substantial for most of this time except during vibration generating activities ... Jackhammers typically generate vibration levels of 0.035 in/sec PPV and drilling typically generates vibration levels of 0.09 in/sec PPV at a distance of 25 feet. Vibration levels would vary depending on soil conditions, construction methods, and equipment used. Vibration levels would be expected to be 0.2 in/sec PPV or less, below the 0.3 in/sec PPV significance threshold. Vibration generated by construction activities near the common property line would at times be perceptible, however, would not be expected to result in "architectural" damage to these buildings. In areas where vibration would not be expected to cause structural damage, vibration levels may still be perceptible. However, as with any type of construction, this would be anticipated and it would not be considered significant given the intermittent and short duration of the phases that have the highest potential of producing vibration (demolition and use of jackhammers and other high-power tools). By use of administrative controls such as notifying adjacent commercial shops of scheduled construction activities and scheduling construction activities with the highest potential to produce perceptible vibration to hours with the least potential to affect these uses, perceptible vibration can be kept to a minimum and as such would not result in a significant impact with respect to perception." Based on this analysis, the EIR determines that this impact would be *less than significant*. The EIR analysis already included expected typical construction noise, so the Facility does not represent a change to that project described in the EIR.

Checklist question XIIIc: The EIR states, "retail, office, and industrial uses developed at the site would be intermittently exposed to noise levels from aircraft associated with the Peterson private airport located approximately 1.5 miles east of the Specific Plan area. Because of relatively infrequent use of the airstrip and aircraft overflights, onsite noise levels would not substantially increase above those resulting from traffic along the local roadway network or onsite operations. The resulting noise environment from aircraft would be considered compatible with the proposed land uses" (DEIR 4.12-29). The EIR determines that this impact is less than significant. Because the Facility will be located on this same land, it does not represent a change to the project described in the EIR.

XIV. Population / Housing

Population / Housing Checklist Questions

XIV. Population / Housing. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	DEIR pp. 4.13-1 to 4.13-15	No	No	No	No
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	DEIR pp. 4.13-1 to 4.13-15	No	No	No	No

Checklist question XIVa: The Specific Plan determines that buildout of the RAAP Specific Plan will not result in a “substantial and unplanned level of growth and associated impacts would be *less than significant*” (DEIR 4.13-13). The EIR describes an overall much larger scale of growth (described in detail on pages 4.13-12 and 4.12-13 of the DEIR) than would be caused by the approximately 50 employees at the Carbon Zero 1 Project alone, so the Facility does not represent a change to the project described in the EIR. The Facility will create up to 450 construction jobs onsite during the peak of the construction period; this would be temporary and would also not represent a change to the project described in the EIR.

Checklist question XIVb: As stated in the EIR, “the RAAP site does not contain any housing units and the Plan does not propose the demolition or redevelopment of any housing units. As such, implementation of the Plan would not result in the displacement of housing units or require the construction of replacement housing elsewhere. The Facility does not propose the construction or demolition of any housing units and therefore is

not a change from the project described in the EIR. As such, there are no residents of the site who could be displaced with implementation of the Plan, and therefore, the construction of replacement housing elsewhere would not be required. Consequently, there would be *no impact* with respect to population or housing unit displacement” (DEIR 4.13-13). This determination applies to the Facility, which will be located entirely on land already analyzed for impacts to housing, and therefore the Facility is not a change from the project described in the EIR.Public Services

Public Services Checklist Questions

<p>XV. Public Services.</p> <p>Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Important Information Identify New Significant Impacts?</p>	<p>Environmental Document Mitigation Measures to Address Impacts</p>
<p>a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:</p>	<p>DEIR pp. 4.14-1 to 4.14-26</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Mitigation Measure PUB-1 (FEIR pp 2-13; MMRP p. 11)</p>
<p>Fire protection?</p>	<p>DEIR pp. 4.14-1 to 4.14-26</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>Mitigation Measure PUB-1 (FEIR pp 2-13; MMRP p. 11)</p>
<p>Police protection?</p>	<p>DEIR pp. 4.14-1 to 4.14-26</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>

XV. Public Services. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
Schools?	DEIR pp. 4.14-1 to 4.14-26	No	No	No	No
Parks?	DEIR pp. 4.14-1 to 4.14-26	No	No	No	No
Other public facilities?	DEIR pp. 4.14-1 to 4.14-26	No	No	No	No

Checklist question XVa: The EIR states that “RPS (Riverbank Public Safety) has determined that buildout of the Specific Plan would not exceed the ability of police responders to adequately serve the Plan Area, and thereby would not need additional equipment or staff or require construction of new facilities or modification of existing facilities” (DEIR 4.14-5). The General Plan also includes Policies PUBLIC-8.1, 8.4, and 8.5 that require the RAAP development to have adequate police services. The EIR determines that this impact is *less than significant*. The Facility, as one portion of the buildout of the Specific Plan, does not represent a change to the project described in the EIR.

The EIR determines that fire protection services will need improvements as the city pursues new development, and states that “Policy PUB-3 of the Specific Plan would require the City to ensure that financing of the new station would occur commensurate with development within the RAAP site” (DEIR 4.14-13). The EIR includes a mitigation measure PUB-1 stipulating that “the city shall coordinate with the Stanislaus Consolidated Fire Protection District to ensure fair share development fees for future development resulting from the implementation of the RAAP Specific Plan” (FEIR 2-13). With this mitigation measure in place, the EIR determines that this impact will be *less than significant*. As would be the case with any other kind of new development onsite, the Facility would potentially increase the demand for fire protection services. The potential increase is consistent with the project described in the EIR, and the Facility will be subject to the existing Mitigation Measure PUB-1. Therefore, the Facility does not represent a change to the project described in the EIR.

The EIR makes the determination that there will be a *less than significant* impact to public schools because “buildout of the plan would not result in a substantial population increase, either directly, through the construction of new housing, or indirectly, through the creation of new jobs that would attract new residents to the Riverbank area” (DEIR 4.14-20). The Facility, as one portion of the buildout of the Specific Plan, does not represent a change to the project described in the EIR.

The Specific Plan determines that the buildout of the Specific Plan will not significantly increase local population; therefore, the Specific Plan determines that the Specific Plan’s buildout would not significantly increase the local volume of parks or other public facilities. There is a *less than significant* impact to this public service anticipated in the EIR. The Facility, as one portion of the buildout of the Specific Plan, does not represent a change to the project described in the EIR.

XV. Recreation

Recreation Checklist Questions

<p>XVI. Recreation. Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Important Information Identify New Significant Impacts?</p>	<p>Environmental Document Mitigation Measures to Address Impacts</p>
<p>a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?</p>	<p>DEIR pp. 4.15-1 to 4.15-8</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?</p>	<p>DEIR pp. 4.15-1 to 4.15-8</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>

Checklist question XVIa: The EIR describes the build out of the complete RAAP site with new buildings in both the existing industrialized area and the current open spaces and determines that “buildout of the Plan would not result in increased use of park and recreational facilities due to a substantial increase in the number of users” (DEIR 4.15-7). The EIR states that the implementation of the Plan will result in a *less than significant* impact to recreation facilities. Therefore, the Facility does not represent a change to the project described in the EIR.

Checklist question XVIb: As established in the EIR, there will not be a significant increase in population from buildout of the Specific Plan. Therefore, existing recreational facilities would not require expansion as a result of the Specific Plan’s buildout. Since there will be no expansion in recreation facilities, there is no impact on the environment from an expansion, and therefore, the EIR determines the impact under this threshold to be *less than significant*. The Facility is consistent with the project described in the EIR and will not create a need for new recreational facilities.

XVI. Transportation/Traffic

Transportation/Traffic Checklist Questions

XVII. Transportation/ Traffic. Would the project:	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Important Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	DEIR pp. 4.16-1 to 4.16-43	No	No	No	(*)
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	DEIR pp. 4.16-1 to 4.16-43	No	No	No	(*)
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	DEIR pp. 4.16-1 to 4.16-43	No	No	No	(*)
d) Result in inadequate emergency access?	DEIR pp. 4.16-1 to 4.16-43	No	No	No	(*)

(*) Note, as discussed below, the EIR restates the significance thresholds for traffic, determines that traffic impacts from the full build out of the Specific Plan will be significant and unavoidable, and imposes extensive

mitigation measures that address all significance thresholds generally. (See MMRP pp. 12 to 15, discussing mitigation measures TRANS-1, TRANS-2, TRANS-3, TRANS-4, TRANS-5, TRANS-6.)

Checklist questions XVIIa, c, d (analyzed together): The EIR extensively analyzes the impacts of the implementation of the Specific Plan. The Specific Plan anticipates that the largely abandoned industrial areas of the RAAP Site would be re-used with new industrial business and that the currently empty portions of the RAAP Site would be built-up with business parks and industrial facilities, essentially filling the entire 140 acre parcel with businesses. The EIR estimates that this buildout would create 9,390 total daily vehicle trips, including 6,050 total truck and passenger vehicle trips to the R&D and retail parcels of the RAAP site. The EIR (Appendix B, Mobile Source HRA inputs) assigned 161 truck trips to Parcels 2 and 2A.

Because of the potential impact associated with nearly 10,000 daily trips from the full build out of the Specific Plan as well as temporary traffic associated with construction, the EIR contains an extremely detailed analysis of traffic, including analyzing the level of use of use on surrounding streets and intersections. The EIR restates the CEQA Checklist questions and significance thresholds based on the City's experience analyzing traffic impacts to the following:

- The addition of project traffic causes a signalized intersection to deteriorate from an acceptable level to an unacceptable level.
- The addition of project traffic causes the level of service at an unsignalized intersection to degrade from an acceptable to an unacceptable service level or causes an unsignalized intersection to meet peak hour traffic signal warrants
- The project substantially increases hazards or congestion due to a design feature (e.g., sharp curves) or incompatible uses (e.g., farm equipment)
- The project results in inadequate emergency access.
- The project conflicts with adopted transportation policies, plans or programs.

Reviewing the EIR's detailed traffic analysis under these thresholds, the EIR determines that traffic impacts will be *significant and unavoidable*. When approving the Specific Plan, the City made findings regarding the traffic, adopted a statement of overriding considerations for the unavoidable impacts, and imposed several mitigation measures to address the impacts. Some of the mitigation measures apply generally to the City and County planning and development processes, and some apply to individual projects.

The Facility's worst case activity levels are expected to generate up to 164 truck (328 daily one-way trips) and other commercial round trips per day (290 daily one-way trips) and approximately 50 employee roundtrips in passenger vehicles (100 daily one-way trips) for the all truck scenario and seven truck round trips and 2 daily rail round trips for the truck and rail scenario, which is a fraction of trips analyzed by the EIR for these parcels, and therefore, the Facility does not represent a change to the project described in the EIR. In addition, the City already determined that traffic impacts of the full Specific Plan project will be significant and imposed several mitigation measures, and the Facility will be required to comply with those mitigation measures applicable to individual projects.

Checklist questions XVIIb: The EIR did not evaluate this topic because the threshold was added to the CEQA Guidelines after December 31, 2018. Since July 2020, all lead agencies were required to adopt vehicle miles traveled (VMT) as the new measure for identifying transportation impacts for land use projects, replacing automobile delay-based level of service (LOS).

To aid in this transition, the Governor's Office of Planning and Research released a technical advisory, "Evaluating Transportation Impacts in CEQA" (December 2018). The City of Riverbank has not yet adopted "Vehicle Miles Traveled (VMT) Guidelines". The VMT analysis utilizes the thresholds developed by OPR in

December 2018 entitled, “*Technical Advisory on Evaluating Transportation Impacts in CEQA*” (Technical Advisory) for automobile VMT (i.e., light-duty vehicles).

The Technical Advisory suggests that lead agencies may screen out VMT impacts under CEQA based on project size, VMT generation characteristics, transit availability, and provision of affordable housing. The following project types are ‘screened out’ as having less-than-significant transportation impacts in the Technical Advisory¹:

- ▶ **Small Projects Generating Less than 110 Daily Trips:** OPR suggests a small project that would generate 110 trips per day or less generally may be assumed to cause a less-than-significant transportation impact and thus not warrant further VMT analysis.
- ▶ **Redevelopment Projects with a Net Decrease in VMT:** Where a project replaces existing VMT-generating land uses, if the replacement leads to a net overall decrease in VMT, the project would lead to a less-than-significant transportation impact. If the project leads to a net overall increase in VMT, then the thresholds developed by the jurisdiction should apply.
- ▶ **Projects in Low VMT Areas:** Residential and office (or other land use) projects that are located in areas with low VMT, and that incorporate similar features (i.e., density, mix of uses, transit accessibility), will tend to exhibit similarly low VMT and thus do not warrant further VMT analysis.
- ▶ **Projects in Transit Priority Areas (TPAs):** A TPA is an area within a half a mile of a major transit stop or a bus transit corridor with service intervals of no longer than 15 minutes during peak commute hours. A ‘major transit stop’ means “a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.” as defined by Public Resources Code Section 21064.3. OPR suggests that a project in TPA should generally be presumed to have less than significant impacts, but the presumption might not be appropriate if the project:
 - Has a Floor Area Ratio (FAR) of less than 0.75
 - Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking)
 - Is inconsistent with the applicable Sustainable Communities Strategy (SCS) (as determined by the lead agency, with input from the Metropolitan Planning Organization)
 - Replaces affordable residential units with a smaller number of moderate- or high-income residential units
- ▶ **Local-Serving Retail Projects under 50,000 Square Feet:** Because new retail development typically redistributes shopping trips rather than creates new trips, estimating the total change in VMT (i.e., the difference in total VMT in the area affected with and without the project) is the best way to analyze a retail project’s transportation impacts. By adding retail opportunities into the urban fabric and thereby improving retail destination proximity, local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than-significant transportation impact. Regional serving retail development, on the other hand, which can lead to substitution of longer

¹ Governor’s Office of Planning and Research. 2018, December. Technical Advisory on Evaluating Transportation Impacts in CEQA. https://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

trips for shorter ones, may tend to have a significant impact. Where such development decreases VMT, lead agencies should consider the impact to be less-than-significant. The Technical Advisory suggests that retail uses of less than 50,000 square feet might be considered local-serving.

- ▶ **Affordable Housing Projects:** OPR guidance indicates that adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. Further, "... low-wage workers in particular would be more likely to choose a residential location close to their workplace, if one is available." In areas where existing jobs-housing match is closer to optimal, low-income housing nevertheless generates less VMT than market rate housing, therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT. Evidence supports a presumption of a less-than-significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations.

Thresholds for Impacts to Goods Movement

Neither the Technical Advisory nor CEQA Guidelines Section 15064.3(a) directly address how to analyze transportation impacts associated with changes in traffic associated with goods movement, which is largely carried out by heavy-duty trucks. CEQA Guidelines Section 15064.3(a) specifies that the VMT to be analyzed is defined as the amount and distance of *automobile travel* (emphasis added) attributable to a project. The term 'automobile' refers to on-road *passenger vehicles, specifically cars and light trucks* (emphasis added).² SB 743 does not require the inclusion of heavy-duty truck trips, utility vehicles, or other types of vehicles in the VMT analysis.³ In the case of trucks (other than light trucks), based on CARB's 2017 Scoping Plan, the State's strategy for the goods movement sector is not via VMT reduction, but through advances in technology [zero-emissions (ZE) and near-zero emissions (NZE) control strategies].⁴

Automobile VMT Impact Assessment

CEQA Guidelines Section 15064.3(a) states that the primary consideration in evaluating a project's transportation impacts for CEQA purposes is the amount and distance that a project might cause people to drive. This approach captures two measures of transportation impacts: number of automobile trips generated and VMT. The Facility would result in 50 daily employee commute trips by automobile (which are comprised of light-duty passenger vehicles and light-duty trucks). Consequently, for the purpose of quantifying automobile VMT, the Facility is expected to generate less than the 110 trips per day for employee commute trips and is screened out from a more detailed VMT analysis in accordance with OPR's guidance for small projects. Thus, the Facility would result in less-than-significant transportation impacts under SB 743 regarding employee trips and would not represent a change to the project described in the EIR.

² Governor's Office of Planning and Research, December 2018, Technical Advisory on Evaluating Transportation Impacts Under CEQA, https://www.opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf accessed January 10, 2021.

³ OPR staff have interpreted that the intent of SB 743 was to address passenger vehicle VMT impact and not freight VMT, as cited under CEQA Guidelines Section 15064.3(a). Therefore, lead agencies could exclude freight VMT from transportation VMT impact analyses under CEQA.

⁴ California Air Resources Board, 2017, California's 2017 Climate Change Scoping Plan: The Strategy for Achieving California's 2030 Greenhouse Gas Target, https://www.arb.ca.gov/cc/scopingplan/2030sp_pp_final.pdf accessed on March 18, 2019.

XVII. Tribal Cultural Resources

Tribal Cultural Resources Checklist Questions

XVIII. Tribal Cultural Resources.	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	NA	No	No	NA	No
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	NA	No	No	NA	No

XVIII. Tribal Cultural Resources.	Where Impact Is Analyzed in Existing Environmental Documents	Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?	Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?	Does New Information Identify New Significant Impacts?	Environmental Document Mitigation Measures to Address Impacts
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	NA	No	No	NA	No

At the time of the preparation of the Specific Plan, this checklist section and these questions were not part of the CEQA Guidelines. Since that time, the Appendix G checklist added these questions. As discussed above under Checklist questions related to cultural resources, there are no known cultural resources in the RAAP site. The project described in the EIR includes the full build out of the RAAP site, including build out in both currently undeveloped areas, as well as in the existing industrialized area of the RAAP site, so the Facility does not represent a change to the project described in the EIR with respect to this threshold.

XVIII. Utilities / Service Systems

Utilities / Service Systems Checklist Questions

<p>XIX. Utilities / Service Systems.</p> <p>Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Important Information Identify New Significant Impacts?</p>	<p>Environmental Document Mitigation Measures to Address Impacts</p>
<p>a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?</p>	<p>DEIR pp. pp. 4.10-1 to 4.10-14 and pp. 4.17-1 to 4.17-42</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?</p>	<p>DEIR pp. 4.17-1 to 4.17-42</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>

<p>XIX. Utilities / Service Systems.</p> <p>Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Important Information Identify New Significant Impacts?</p>	<p>Environmental Document Mitigation Measures to Address Impacts</p>
<p>c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?</p>	<p>DEIR pp. 4.17-1 to 4.17-42, and FEIR pp. 3-13 to 3-17</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?</p>	<p>DEIR pp. 4.17-1 to 4.17-42</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?</p>	<p>DEIR pp. 4.17-1 to 4.17-42</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>

Checklist question XIXa: (See also response to checklist question Xb) A water survey conducted for the EIR determines that there is sufficient groundwater to serve future development at the RAAP Site, which is expected to continue sourcing its water from onsite wells. Additionally, the DEIR states that "the Urban Water Management Plan (UWMP) determined that sufficient groundwater supply is available to supply future growth within the City, including the Plan Area". The Facility will rely on RIC wells and on the City of Riverbank's Water Division for its water needs, as described in the EIR. The City of Riverbank's water is supplied from wells located throughout the City. These wells are monitored and maintained by the City. The EIR determines the impact to groundwater resources due to the City's availability of groundwater supply and availability of water from onsite wells to be *less than significant*. Because the Facility will source its water from a metered

water tie-in near the site entrance and will be required to follow city water use policies, it does not change the project described in the EIR.

The EIR for the Specific Plan compares the water demands from the implementation of the Specific Plan to the available water supply. The Specific Plan determines that the wells on the RAAP site have a capacity of about 2,600 gallons per minute ("gpm") and additional water could be available from the City supply, which together is more than adequate to provide the 438 gpm needed for the new business park development and additional amounts needed for industrial uses, so the EIR determines that the impact under this threshold is less than significant (DEIR 4.17-24). The Facility will require a water supply of approximately 240 gpm, which is well within the available capacity described in the Specific Plan. The Facility will reduce its water usage by 60 gpm by recycling wastewater onsite. Additional water supply will be generated from intermittent wastewater treatment of filter backwash and clean in place streams and stormwater reuse. For these reasons, the Facility does not change the project analyzed in the EIR.

The EIR states that wastewater released from the RAAP site is required to comply with the conditions of the site's Waste Discharge Requirement issued by the State Water Resources Board. Because of these compliance measures, the EIR determines that the impact under this threshold is *less than significant*. The Facility will treat its process wastewater onsite for reuse, so there is no change from the project described in the EIR regarding wastewater treatment.

The EIR states that development under the Specific Plan could lead to "significant changes to land use that would substantially alter the existing drainage pattern of the RAAP site" (DEIR 4.10-11), but the impact under this standard would be less than significant due to the RAAP Specific Plan requirement for all development on the RAAP Site to comply with National Pollutant Discharge Elimination System (NPDES) regulations regulating storm water runoff volumes and to implement the use of LID, surface runoff volumes would be contained onsite in detention basins (DEIR 4.10-11). The Facility is located within an existing industrialized area of the RAAP Site that is already generally level. For these reasons, the Facility does not represent a change to the project described in the EIR.

The EIR analyzes the complete build out of the RAAP site and states that "all the storm water from the Plan Area would be treated onsite" (FEIR 3-14) and determines that the "Specific Plan would not result in any significant impacts to stormwater, therefore, no mitigation measures are necessary." (FEIR 3-15). The Facility will be part of the anticipated build out of the RAAP site and will construct an additional stormwater retention pond to retain all stormwater on site. In addition, the Facility will be located on a portion of the RAAP site that either already contains or will be developed with hard surfaces and drains and will not be located in open area without hard surfaces. For these reasons, there are no changes to the project described in the EIR.

Although the EIR did not directly evaluate the potential impacts to electric power, natural gas or telecommunications facilities, the RAAP site was already served with electric power, natural gas, and telecommunications facilities. The Modesto Irrigation District did provide comments on the DEIR (FEIR comment letter RA1). In its comments RA1-4, RA1-5 and RA1-6, the Modesto Irrigation District confirms they have sufficient electricity supplies and can provide electric power to the RAAP area. As discussed in the Project Description, Aemetis has obtained a will-serve letter from Pacific Gas & Electric per Policy *PUBLIC-6.3* to ensure adequate fuel supplies and availability. Additionally, the Facility is a producer of RD and SAF. For these reasons, the Facility will not create any new impacts over what was evaluated in the EIR and does not represent a change to the project described in the EIR.

Checklist question XIXb: (See also response to checklist question Xb) A water survey conducted for the EIR determines that there is sufficient groundwater to serve future development at the RAAP Site, which is

expected to continue sourcing its water from onsite wells. Additionally, the DEIR states that “the Urban Water Management Plan (UWMP) determined that sufficient groundwater supply is available to supply future growth within the City, including the Plan Area”. This is aligned with the City of Riverbank’s updated UWMP published in 2020. The Facility will rely on onsite wells for its water needs, as described in the EIR. The EIR determines the impact to groundwater resources due to the City’s availability of groundwater supply and availability of water from onsite wells to be *less than significant*. Because the Facility will source its water from onsite well(s) and will be required to follow city water use policies, it does not change the project described in the EIR.

Checklist question XIXc: The EIR determines that the impact under this threshold is *less than significant* because the anticipated wastewater generation resulting from the build-out of the Specific Plan would be within the capacity of the existing City Wastewater Treatment Plant. The Facility will treat, recycle and/or evaporate its process wastewater onsite and discharge sanitary wastewater to the City sewer, creating no need for changes to existing City facilities. For this reason, the Facility will result in no changes to the project analyzed in the EIR.

Checklist question XIXd: As stated in the EIR, “solid waste from the proposed [Specific] Plan site would be transferred to the Forward, Inc. landfill in San Joaquin County, the Fink Road Landfill, and the Covanta Waste-to-Energy Facility in Stanislaus County. Covanta is permitted to receive up to 1,700 tons of waste per day, and the Fink Road Landfill is expected to receive approximately 400 tons per day by 2029 and will add an estimated 10 to 15 years of additional disposal capacity if approved” (DEIR 4.17-40). The EIR uses the estimate that each additional job created sends an additional “16 pounds per job” of waste to local landfills. The calculation of additional waste from development of the Specific Plan is made assuming that 1,654 jobs will be added onsite and results in an additional volume of between 0.2 and 3.3 percent of the daily capacity of the three landfills mentioned above. Based on this information, the EIR makes the determination that this will be a less than significant impact. The Facility will generate approximately 49-59 TPD of solid waste, consisting of wastewater treatment sludge, salt cake from wastewater treatment, waste oil, and spent clay. The waste generated by the Facility will be within the 3.3 percent of the daily capacity, and the overall effect impact of the Facility will be to reduce waste generation since the plant will be using vegetable oils and animal fats as feedstock. Furthermore, the waste oils (29-39 TPD) and spent clay (13 TPD) can be sold as animal feed, reducing the amount of waste that is transferred to landfills. Therefore, the Facility does not represent a change to the project analyzed in the EIR.

Checklist question XIXe: The EIR determines that compliance with relevant federal, state, and local statutes that pertain to solid waste (as set forth in the EIR on page 4.17-41), will ensure that the Specific Plan’s impact in this category is *less than significant*. The Facility will also comply with applicable laws related to the management of solid waste, so there is no change to the project described in the EIR.

XIX. Wildfire

Wildfire Checklist Questions

<p>XX. Wildfire. Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Information Identify New Significant Impacts?</p>	<p>Environmentally Document Mitigation Measures to Address Impacts</p>
<p>a) Substantially impair an adopted emergency response plan or emergency evacuation plan?</p>	<p>DEIR pp. 4.9-1 to 4.9-18</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?</p>	<p>DEIR pp. 4.9-1 to 4.9-18</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>
<p>c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?</p>	<p>DEIR pp. 4.9-1 to 4.9-18</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>

<p>XX. Wildfire.</p> <p>Would the project:</p>	<p>Where Impact Is Analyzed in Existing Environmental Documents</p>	<p>Do Substantial Changes Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Do Substantial Changes in Circumstances Involve New Significant Impacts or Substantially More Severe Impacts?</p>	<p>Does New Important Information Identify New Significant Impacts?</p>	<p>Environmental Document Mitigation Measures to Address Impacts</p>
<p>d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?</p>	<p>DEIR pp. 4.9-1 to 4.9-18</p>	<p>No</p>	<p>No</p>	<p>No</p>	<p>No</p>

Although this is a new section to CEQA Guidelines Appendix G, the EIR evaluated the potential impacts from wildfires in Question g and h) of Section 4.9. Hazardous and Hazardous Materials of the EIR.

Checklist question XXa and c: As described in Chapter 4.16, Transportation and Traffic of the EIR, development under the Specific Plan would make only minor changes to the existing road network although it would bring more employees to the area and more congestion on existing streets. The North County Corridor Phase 1 will include upgrades to Claribel Road and Claus Road as well as a new signalized intersection at Claus Road and the Facility entrance; all of these improvements will improve emergency evaluation route access. The Stanislaus County Safety Plan and Multi-Jurisdictional Hazardous Mitigation Plan (MJHMP) includes emergency response to various safety hazards including seismic and geologic hazards, dam failure, flood hazards and fire hazards. The City of Riverbank is within the inundation zone of New Melones dam in the event of a failure. The Office of Emergency Services maintains inundation maps for the New Melones and other dams that would affect the county, in the event of earthquake or other causes of failure. If failure of the New Melones Dam were to occur, the City of Riverbank evacuation routes would be to the southeast toward higher ground, with the primary evacuation routes along Terminal/Santa Fe and Claus Road towards Empire and Waterford. Although the RAAP Specific Plan proposes to modify the visual character of Claus Road, vehicle travel would not be hindered or obstructed, and would not impair implementation of or physically interfere with the Stanislaus County MJHMP. For these reasons, the EIR found the potential impact to an adopted emergency response plan or emergency evaluation plan would be less-than-significant. The Facility is located within the RAAP Specific Plan area, will not add any infrastructure that will exacerbate any fire risks, will not impair an adopted emergency response or evacuation plan, will have a facility emergency Preparedness/Contingency Plan, and does not represent a change to the project analyzed in the EIR.

Checklist question XXb and d: The EIR states that the RAAP project has no areas within the site are defined as "Very High Fire Hazard Severity" (DEIR 4.9-18) for wildland fires, and all new development would comply as required by law with California Building Code, California Fire Code, and any other applicable state and local fire safety requirements. Further the slope within RAAP area is flat and there are no features on the

site that would exacerbate wildfire risks, including downslope or downstream flooding or landslides, as a result of runoff, or any other associated risks with wildfire. Additionally, the EIR found that potential impacts to exposing people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands were less-than-significant due to General Plan policies SAFE-1.1, SAFE-1.2, SAFE-1.4, SAFE-1.5, and SAFE-2.2, SAFE-2.3, SAFE-2.4 (Section 4.9h). For these reasons, the EIR determines that impact of buildout of the Specific Plan under these standards is *less than significant*. The Facility is located within the plan area evaluated in the Specific Plan and does not represent a change to the project analyzed in the EIR.

5. ACRONYMS

Table 11 Table of Acronym Definitions

Acronym	Definition
AB	Assembly Bill
Army	U.S. Army
BAU	Business As Usual
bbl	barrels
BOD	Biological oxygen demand
BPS	Best Performance Standards
BRAC	base closure and realignment
CAFE	Corporate Average Fuel Economy
CalARP	California Accidental Release Program
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CCIC	Central California Information Center
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CI	carbon intensity
City	City of Riverbank
COD	Chemical oxygen demand
CRHR	California Register of Historic Resources
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
DEIR	Draft Environmental Impact Report
DTSC	California Department of Toxic Substances Control
EIR	Environmental Impact Report
FAR	floor area ratio
FEIR	Final Environmental Impact Report
FMMP	Farmland Mapping & Monitoring Program
GHG	greenhouse gas
gpm	gallon per minute
HABS/HAER	Historic American Building Survey/Historic American Engineering Record
HFU	HydroFlex unit
HPU	hydrogen production unit
lb/hr	Pound per hour
LCFS	Low Carbon Fuel Standard
LEED	Leadership in Energy and Environmental Design
LESA	Land Evaluation/Site Assessment
LOS	level of service
MJHMP	Multi-Jurisdictional Hazard Mitigation Plan
mmBTU	Million British thermal unit
MMRP	Mitigation Monitoring and Reporting Program
MMSCF	million standard cubic feet
MW	megawatt

NHTSA	National Highway Traffic Safety Administration
NPDES	National Pollutant Discharge Elimination System
NZE	near zero emission
PRC	Public Resources Code
PSA	Pressure swing adsorber
psig	Pounds per square gauge
RAAP	Riverbank Army Ammunition Plant
R&D	Office/research and development
RD	Renewable diesel
RIC	Riverbank Industrial Complex
RMP	Risk Management Plan
RPS	California Renewables Portfolio Standard
RPUSSJV	Recovery Plan for Upland Species of San Joaquin Valley
RWQCB	Regional Water Quality Control Board
SAF	sustainable aviation Fuel
SB	Senate Bill
scf	standard cubic feet
SCS	Sustainable Communities Strategy
SFO	San Francisco Airport
SFPUC	San Francisco Public Utility Commission
SJVAPCD	San Joaquin Valley Air Pollution Control District
SPCC	Spill Prevention, Control, and Countermeasure
SWRCB	State Water Resources Control Board
tbd	to be determined
TPA	transit priority areas
TPD	tons per day
VMT	Vehicle miles travelled
US EPA	United States Environmental Protection Agency
UWMP	Urban Water Management Plan
WDRs	Waste Discharge Requirements
WWTP	wastewater treatment plant
ZE	zero emission

6. REFERENCES

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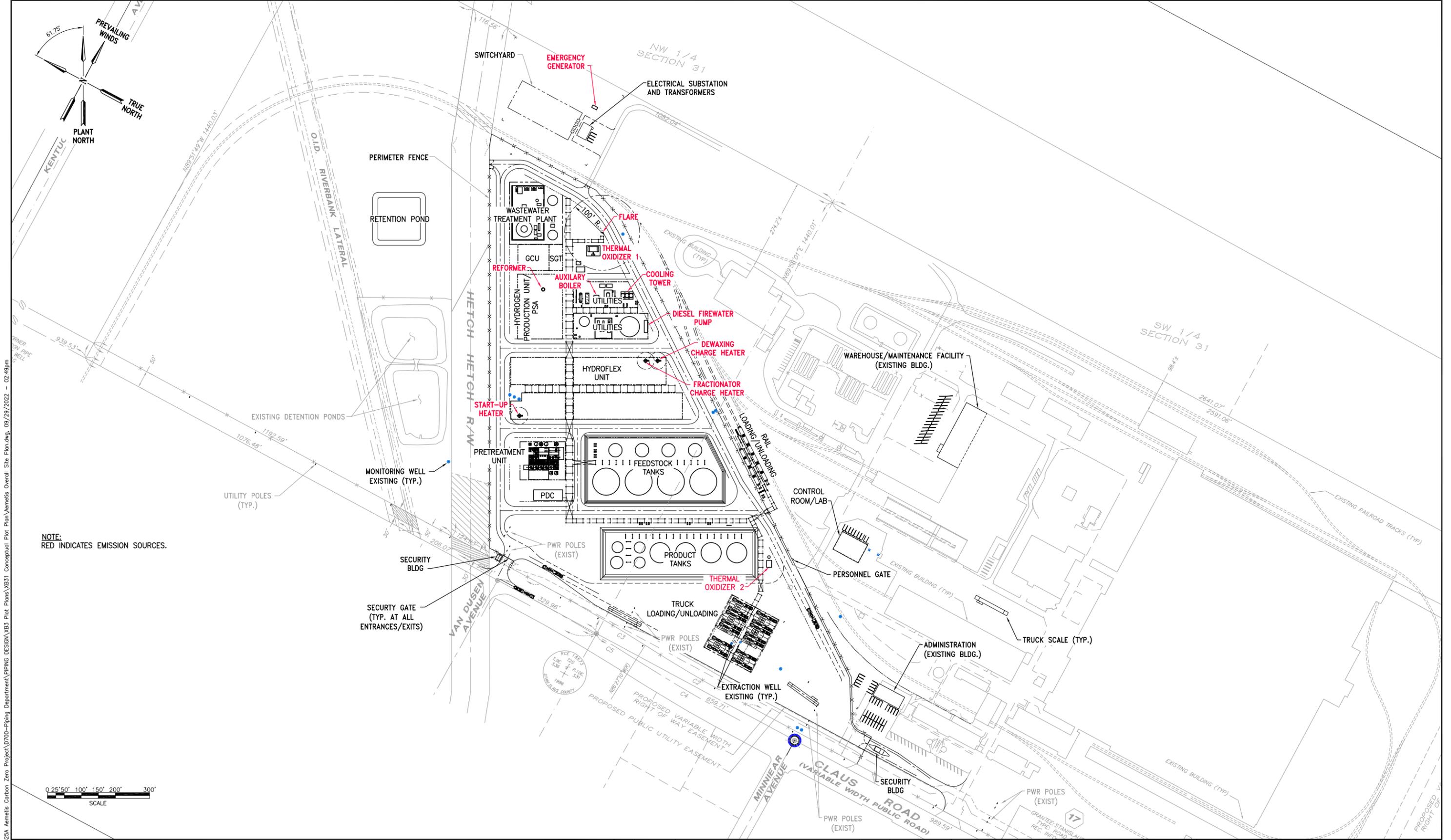
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Exhibit 1 Facility Site Plan



NOTE:
RED INDICATES EMISSION SOURCES.



NOTES:

NO.	DATE	REVISION - DESCRIPTION	BY	CHKD.	APPV.
0	29-SEP-2022	ISSUED FOR USE	LM	JRD	

CTCI CTCI Americas, Inc.					
OWN. BY:	LM	DATE:	01/10/2022	ENGR. APPV.:	
CHK. BY:		DATE:		APPV. BY:	JRD
PROJECT NO.:	21E4825A		UNIT NO.:		SCALE:
					1"= 120'-0"



AEMETIS

PRELIMINARY SITE PLAN LAYOUT
CARBON ZERO 1 PROJECT
RIVERBANK, CALIFORNIA

DWG. NO.:	XB30-0000-SK01	SHEET:	1/1	REV. NO.:	0
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Exhibit 2 Facility Plot Plan

Appendix A Air Quality Technical Memo

Air Quality

Riverbank is located in the northern portion of the San Joaquin Valley Air Basin, which is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). SJVAPCD establishes airborne pollutant emissions thresholds to determine whether construction or operations of a proposed project will result in significant impacts, including cumulative impacts, to regional air quality by obstructing the implementation of any applicable air quality plan, contributing to potential air quality violations, or resulting in a cumulatively considerable net increase of any criteria pollutant for which the San Joaquin Air Basin is in nonattainment status.

SJVAPCD's *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) provides specific significance thresholds for evaluating airborne emissions of criteria pollutants generated during construction of a proposed project, as well as those from direct and indirect sources associated with its operations (SJVAPCD 2015). Direct sources of operational emissions include stationary sources requiring a Permit to Operate. Indirect sources of operational emissions, which do not require a Permit to Operate, include mobile sources and energy consumption. SJVAPCD considers a proposed project to have a significant impact on regional air quality if, during either construction or operations, criteria pollutant emissions exceed any of the significance thresholds presented in the table below. The operational emissions thresholds apply to permitted equipment/activities and non-permitted equipment/activities separately when making significance determinations, per SJVAPCD's GAMAQI (SJVAPCD 2015).

SJVAPCD Air Quality Thresholds of Significance – Criteria Pollutants

Pollutant/Precursor	Annual Construction Emissions (tons/year)	Annual Operational Emissions (tons/year)	
		Permitted Equipment/Activities	Non-Permitted Equipment/Activities
CO	100	100	100
NO _x	10	10	10
ROG	10	10	10
SO _x	27	27	27
PM ₁₀	15	15	15
PM _{2.5}	15	15	15

Source: SJVAPCD's Air Quality Thresholds of Significance – Criteria Pollutants (SJVAPCD 2015), Section 8.3, Table 2.

Additionally, a proposed project is considered to have a significant impact if it:

- Exposes the public to objectionable odors, and/or
- Results in toxic air contaminant (TAC) emissions that result in a health risk to the Maximally Exposed Individual (MEI) that is equal to or exceeds either of the following thresholds:
 - A cancer risk of 10 in one million
 - An acute or chronic health risk Hazard Index of 1

The thresholds of significance mentioned above are based on SJVAPCD Rule 2201 New Source Review (NSR) offset thresholds. The District has determined that using these NSR offset thresholds in making CEQA significance determinations, as allowed under California Code of Regulations Title 14, Section 15064.7 (14 CCR §15064.7), promotes consistency in the environmental review process.

Significant impacts of an individual proposed project are considered cumulatively significant when modeling shows that the project's airborne emissions, when combined with those of other existing and planned projects in the area, exceeds a regional air quality standard. A proposed project resulting in a significant air quality impact also results in a significant cumulative air quality impact.

The Carbon Zero 1 Project (also referred to as the "Facility") is located within the former Riverbank Army Ammunition Plant (RAAP). On February 10, 2014, the Riverbank City Council adopted a Specific Plan for the RAAP Site and certified an EIR for the Specific Plan (City of Riverbank 2013). As part of the 2013 RAAP Specific Plan EIR and related technical evaluations, potentially significant impacts were determined for air quality and as such, the RAAP Specific Plan EIR imposed mitigation measures. This technical report has been prepared to support a California Environmental Quality Act (CEQA) environmental checklist evaluation pursuant to California Public Resources Code (PRC) Section 21166 and CEQA Guidelines Section 15162, to determine whether the proposed project is consistent with the impact analyses and mitigation measures presented in the 2013 RAAP Specific Plan EIR.

Construction Phase Emissions

The Carbon Zero 1 Project (or Facility) consists of a Renewable Diesel (RD) and Sustainable Aviation Fuel (SAF) production plant encompassing a total of 960,319 square-feet, including a new 77,076 square-foot rail spur area, material loading/unloading areas, and unpaved roads within the Facility. Installation of industrial equipment and construction of property improvements, including utilities, a few small on-site structures to be used for utilities and administrative functions, and on-site roads, will occur over a period of approximately two years, and is conservatively expected to commence in early 2023. The actual start date will be after required approvals and permits are received and so will likely be later in 2023. Estimates of air pollutant emissions associated with construction of the project are based on a preliminary phasing schedule provided by the Applicant, which includes grading, excavation, site work, building construction, and paving.

Estimates of the unmitigated construction-related emissions associated with the project are shown in Table 1, *Carbon Zero 1 Construction Emissions – Unmitigated*, as quantified using the California Emissions Estimator Model (CalEEMod), Version 2020.4.0 (CAPCOA 2020), and mobile source emissions factors from the California Air Resources Board (CARB) Emission FACTors (EMFAC) Model, Version 1.0.2 (CARB 2021). Emissions estimates are based on the preliminary construction schedule and equipment list provided by the Applicant. As shown in Table 1, unmitigated annual NO_x emissions associated with construction exceed the annual SJVAPCD significance threshold.

Table 1 Carbon Zero 1 Construction Emissions – Unmitigated

Construction Phase	Criteria Air Pollutant Emissions ¹					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Construction Year 2023						
Construction Phase	Daily Maximum Emissions (lb/day)					
Site Preparation	<1	5.8	11	<1	23	12
Grading	1.1	8.2	16	<1	13	7.1
Building Construction	18	126	147	<1	11	6.8
Maximum Daily Construction Emissions ²	19	135	163	<1	24	14
SJVAPCD Daily Significance Threshold	N/A	N/A	N/A	N/A	N/A	N/A
Construction Phase	Annual Emissions (ton/year)					
Site Preparation	<1	<1	<1	<1	<1	<1
Grading	<1	<1	<1	<1	<1	<1
Building Construction	1.7	12	14	<1	1.1	<1
Total Annual Construction Emissions	3.7	14	16	<3	3.1	<3
SJVAPCD Annual Significance Threshold ³	10	10	100	27	15	15
Any Threshold Exceeded?	No	Yes	No	No	No	No
Construction Year 2024						
Construction Phase	Daily Maximum Emissions (lb/day)					
Building Construction	17	119	144	<1	11	6.2
Paving	1.4	9.2	14.7	<1	<1	<1
Maximum Daily Construction Emissions ²	18	128	159	<1	11	6.7
SJVAPCD Daily Significance Threshold	N/A	N/A	N/A	N/A	N/A	N/A
Construction Phase	Annual Emissions (ton/year)					
Building Construction	1.8	13	16	<1	1.1	<1
Paving	<1	<1	<1	<1	<1	<1
Total Annual Construction Emissions	2.8	14	17	<2	2.1	<2
SJVAPCD Annual Significance Threshold ³	10	10	100	27	15	15
Any Threshold Exceeded?	No	Yes	No	No	No	No

Source: CalEEMod Version 2020.4.0 (CAPCOA 2020).

Notes: Totals may not sum to 100 percent due to rounding.

¹ Construction phasing is based on the preliminary information provided by the Applicant. Where specific information regarding proposed project-related construction activities was not available, construction assumptions were based on CalEEMod defaults.

² In 2023, Grading and Building Construction phases overlap; in 2024, Building Construction and Paving phases overlap.

³ SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), Section 8.3, Table 2.

The RAAP Specific Plan EIR includes Mitigation Measure AQ-1e to reduce construction related emissions. For the Carbon Zero 1 Project, the first mitigation strategy evaluated for reducing criteria pollutant emissions was requiring that at least ninety-percent of diesel-powered off-road construction equipment rated above 25 horsepower meet USEPA Tier 4 off-road emission standards.

Mitigation Measure AQ-1e

The project [as described in the RAAP Specific Plan EIR] will implement measures to mitigate emissions from construction equipment exhaust, including the use of alternative-fueled or catalyst-equipped diesel construction equipment; minimizing idling time (e.g. 5-minute maximum); limiting the hours of operation of heavy duty equipment and/or the amount of equipment in use at one time; and replacing fossil-fueled equipment with electrically-driven equivalents (provided they are not run via a portable generator set).

Thus, by requiring that at least ninety-percent of the diesel-powered off-road equipment rated greater than 25 horsepower used during construction of the Carbon Zero 1 Project utilize engines that either meet or exceed USEPA Tier 4 off-road emission standards, construction-related NO_x emissions will be reduced to levels below SJVAPCD’s threshold of significance.

Table 2, *Carbon Zero 1 Construction Emissions – Mitigated*, presents the estimated emissions that result from implementing the USEPA Tier 4 off-road equipment requirement in at least ninety-percent of diesel-powered off-road equipment rated greater than 25 horsepower. As can be seen in Table 2, annual NO_x emissions associated with construction of the Carbon Zero 1 Project are below the annual SJVAPCD significance threshold when this mitigation measure is applied.

Table 2 Carbon Zero 1 Construction Emissions – Mitigated

Construction Phase	Criteria Air Pollutant Emissions ¹					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Construction Year 2023						
<u>Construction Phase</u>	Daily Maximum Emissions (lb/day)					
Site Preparation	<1	1.6	12	<1	23	12
Grading	<1	2.4	18	<1	13	6.9
Building Construction	7.1	49	153	<1	6.8	2.5
Maximum Daily Construction Emissions ²	7.6	51	172	<1	23	12
SJVAPCD Daily Significance Threshold	N/A	N/A	N/A	N/A	N/A	N/A
<u>Construction Phase</u>	Annual Emissions (ton/year)					
Site Preparation	<1	<1	<1	<1	<1	<1
Grading	<1	<1	<1	<1	<1	<1
Building Construction	<1	4.8	15	<1	<1	<1

Construction Phase	Criteria Air Pollutant Emissions ¹					
	ROG	NO _x	CO	SO ₂	PM ₁₀	PM _{2.5}
Total Annual Construction Emissions	<3	6.8	17	<3	<3	<3
SJVAPCD Annual Significance Threshold ³	10	10	100	27	15	15
Any Threshold Exceeded?	No	No	No	No	No	No

Construction Year 2024

<u>Construction Phase</u>	Daily Maximum Emissions (lb/day)					
Building Construction	6.8	48	152	<1	6.7	2.4
Paving	<1	4.4	16	<1	<1	<1
Maximum Daily Construction Emissions ²	7.7	52	168	<1	7.2	2.7
SJVAPCD Daily Significance Threshold	N/A	N/A	N/A	N/A	N/A	N/A

<u>Construction Phase</u>	Annual Emissions (ton/year)					
Building Construction	<1	5.3	16	<1	<1	<1
Paving	<1	<1	<1	<1	<1	<1
Total Annual Construction Emission	<2	6.3	17	<2	<2	<2
SJVAPCD Annual Significance Threshold ³	10	10	100	27	15	15
Any Threshold Exceeded?	No	No	No	No	No	No

Source: CalEEMod Version 2020.4.0 (CAPCOA 2020).

Notes: Totals may not sum to 100 percent due to rounding.

¹ Construction phasing is based on the preliminary information provided by the Applicant. Where specific information regarding proposed project-related construction activities was not available, construction assumptions were based on CalEEMod defaults.

² In 2023, Grading and Building Construction phases overlap; in 2024, Building Construction and Paving phases overlap.

³ SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), Section 8.3, Table 2.

Operational Phase Emissions

Operational emissions associated with the Carbon Zero 1 Project are described in detail below. Emissions of permitted equipment/activities and non-permitted equipment/activities are considered separately in making significance determinations, as allowed by SJVAPCD (SJVAPCD 2015).

Stationary (Permitted) Sources

The following stationary equipment was considered in estimating the emissions of permitted sources:

- **HydroFlex™ Unit (HFU).** The HFU uses a hydro-treating process licensed by Haldor Topsøe to convert feedstock oils to sustainable aviation fuel (SAF) and renewable diesel (RD) products. The HFU conversion process consists of hydrogenation of the feedstock oils followed by separation of the hydrogen, hydrogen sulfide, and light end hydrocarbons from the heavier hydrocarbons containing the final products. The heavier hydrocarbons will be further processed by dewaxing and additional separation steps to ultimately yield heavy naphtha, RD, and SAF.

- **Hydrogen Production Unit (HPU).** The HPU will convert lighter naphtha byproducts and sweetened off-gas from the HFU into pure hydrogen using Haldor Topsøe Convection Reformer (HTCR) technology. The HPU will consist of a series of process reactors, including a Hydrotreater, Desulfurization Absorber, Pre-Reformer and Reformer, High Temperature Shift Converter, and a Pressure Swing Adsorber (PSA).
- **Sour Gas Treatment Unit.** The Sour Gas Treatment Unit consists of fixed-bed vessels arranged in a lead-lag configuration and will be used to remove hydrogen sulfide (H₂S) and other sulfides from the off-gas stream generated in the upstream HFU. The solid iron oxide/hydroxide catalyst beds selectively targets sulfur compounds, converting them into iron sulfide and elemental sulfur. The catalyst will be changed every six months. The sweet gas from the reactors containing very little hydrogen sulfide will be compressed up to the Reformer feed gas pressure and will have a maximum sulfur content of less than 10 parts-per-million by volume (ppmv).
- **Storage Tanks.** Storage tanks requiring permitting will be constructed with internal floating roofs for emissions control. Storage tanks handling permit-exempt materials will be constructed as vertical fixed roof tanks. The feedstock holding tanks will have activated carbon filters on the vents to control potential odors. Tanks containing feedstocks or refined products will be contained with berms, and will be equipped with foam systems for fire suppression. Tanks containing non-hazardous items such as water will not have secondary containment.
- **Auxiliary Boiler.** The 59 MMBtu/hr auxiliary boiler, fired on natural gas, will generate additional steam for use by the Facility. A header system will distribute steam at different levels to steam users. Steam is de-superheated with boiler feed water to meet the required conditions as steam is generated at a high pressure in the reformer and heat recovery steam generator (HRSG). Condensate is collected and returned to reduce make-up requirements. Low pressure condensate enters the LP condensate flash drum where the overhead is condensed.
- **Cooling Tower.** A cooling tower will receive recirculating cooling water return from various plant uses. The water will be pumped to a distributor at the top of the cooling tower, sprayed over the width of the tower, and allowed to trickle down through baffles. Fresh air drawn through the tower by a fan causes evaporative cooling of the water for distribution back to the plant. The baffles also function as drift eliminators, allowing entrained water droplets to condense and return to the water basin below.
- **Wastewater Treatment Plant.** The wastewater plant will be designed as a “Zero Liquid Discharge” (ZLD) facility. All wastewater streams from all units at the Facility will be processed in a multi-stage wastewater treatment plant for treatment and recovery. The wastewater plant includes a digester that creates vent digester gas. The digester gas will be routed to the thermal oxidizers during normal operation. Solids from the wastewater treatment plant will be sent to an offsite landfill for disposal. The wastewater treatment plant is an enclosed system, with no emissions points other than fugitive emissions and the thermal oxidizers.
- **Thermal Oxidizers.** The site will include two 7.6 MMBtu/hr thermal oxidizers that will be used to combust the gases generated during plant operations that cannot be combusted in the flare.

- **Standby Flare.** The site will contain an emergency flare to combust process gases produced during process upsets and emergency situations. The flare will have a natural gas pilot, but will combust gases only during unplanned venting and not during normal operations.

Non-Permitted Sources

In addition to the permitted stationary equipment and activities that are part of the Carbon Zero 1 Project, as described above, emissions from non-permitted sources and activities, including area sources, energy consumption, and vehicles, were also considered in estimating operational emissions. Emissions from these non-permitted sources were estimated using refined off-model calculations based on data provided by the Applicant and emissions factors utilized by CalEEMod, such as mobile source emissions factors available in CARB’s EMFAC database. This strategy allowed for the determination of a more accurate emissions profile and refined emissions estimates reflecting the unique industrial parameters of the Facility.

Estimated Carbon Zero 1 Project Operational Emissions

The Carbon Zero 1 Project Description specifies that operations will result in the generation of up to 50 employee vehicle round-trips, and either seven (7) or 164 heavy-duty haul truck round-trips per day for deliveries and shipments, depending on whether railway transport of feedstocks and products supplants a portion of the projected truck trips. Both scenarios are considered in estimating operational mobile source emissions.

Given the Facility could operate under these two transportation scenarios, the estimated Carbon Zero 1 Project operational emissions were estimated for both the Rail & Truck and All Truck Scenarios, separately. By evaluating the potential emissions for each of the two transportation scenarios, consideration of the worst-case operational emissions scenario for the Carbon Zero 1 Project is possible.

Total criteria pollutant emissions resulting from implementation of the Carbon Zero 1 Project, assuming both railcars and trucks will be used for product shipments and feedstock deliveries, are shown below in Table 3, *Carbon Zero 1 Annual Operational Emissions – Rail & Truck Scenario* (vehicle trip assumptions for this traffic activity scenario are presented in the Carbon Zero 1 Project Description, Table 5).

Table 3 Carbon Zero 1 Annual Operational Emissions – Rail & Truck Scenario

Source	Annual Emissions (ton/year)					
	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}
Component						
Area ¹	0.27	<0.001	0.001	0.0	<0.001	<0.001
Energy ²	—	—	—	—	—	—
Mobile ³	0.05	0.51	0.66	0.006	0.03	0.03
Locomotive (Haul-Line and Switcher)	0.29	2.9	1.4	1.9	0.05	0.05
Annual Emissions (Non-Permitted Sources)	0.60	3.4	2.1	1.9	0.08	0.08

Source	Annual Emissions (ton/year)					
	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}
SJVAPCD Threshold (Non-Permitted Sources) ⁴	10	10	100	27	15	15
Any Threshold Exceeded?	No	No	No	No	No	No
Stationary/Permitted Equipment ^{5, 6, 7}	8.7	8.3	28	12	8.7	8.7
Annual Emissions (Permitted Sources)	8.7	8.3	28	12	8.7	8.7
SJVAPCD Threshold (Permitted Sources) ⁸	10	10	100	27	15	15
Any Threshold Exceeded?	No	No	No	No	No	No

Source: Geosyntec, 2023.

Note: Totals may not sum to 100 percent due to rounding.

¹ Area source emissions were initially calculated in CalEEMod using default emission factors, then modified based on a more granular consumer products profile for industrial projects, as determined by CARB's 2020 Consumer Product Emission Inventory Categories Update. Emissions were adjusted accordingly to seven percent of the values estimated by CalEEMod using default area source emission factors [CalEEMod Version 2020.4.0 (CAPCOA 2020)].

² Emissions resulting from natural gas usage indicated in CalEEMod estimates were not included, as emissions from sources burning natural gas are accounted for in stationary source emissions estimates.

³ Mobile source emissions were estimated using projected vehicle miles traveled (VMT), as detailed in the Project Description, and EMFAC emissions factors deemed applicable to the Project, as assessed by Trinity Consultants (2023).

⁴ SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), Section 8.3, Table 2 for Non-Permitted Sources.

⁵ Calculated using USEPA AP-42 emissions factors and equipment specifications provided by the Applicant.

⁶ Stationary source ROG emissions presented assume voluntarily compliance with the equipment leak standards of 40 CFR 63, Subpart H.

⁷ Stationary source NO_x emissions presented assume the use of emissions control technology, including selective catalytic reduction (SCR) on the Reformer and Auxiliary Boiler.

⁸ SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), Section 8.3, Table 2, for Permitted Sources.

Total criteria pollutant emissions resulting from implementation of the Carbon Zero 1 Project, assuming only trucks will be used for shipments and deliveries (no rail activity), are shown below in Table 4, *Carbon Zero 1 Annual Operational Emissions – All Truck Scenario* (vehicle trip assumptions for this traffic activity scenario are presented in the Carbon Zero 1 Project Description, Table 4).

Table 4 Carbon Zero 1 Annual Operational Emissions – All Truck Scenario

Source	Annual Emissions (ton/year)					
	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}
Component						
Area ¹	0.27	<0.001	0.001	0.0	<0.001	<0.001
Energy ²	—	—	—	—	—	—
Mobile ³	0.14	6.62	1.15	0.09	0.09	0.09

Source	Annual Emissions (ton/year)					
	ROG	NOx	CO	SO ₂	PM ₁₀	PM _{2.5}
Annual Emissions (Non-Permitted Sources)	0.41	6.62	1.15	0.09	0.09	0.09
SJVAPCD Threshold (Non-Permitted Sources) ⁴	10	10	100	27	15	15
Any Threshold Exceeded?	No	No	No	No	No	No
Stationary/Permitted Equipment ^{5, 6, 7}	8.7	8.3	28	12	8.7	8.7
Annual Emissions (Permitted Sources)	8.7	8.3	28	12	8.7	8.7
SJVAPCD Threshold (Permitted Sources) ⁸	10	10	100	27	15	15
Any Threshold Exceeded?	No	No	No	No	No	No

Source: Geosyntec, 2023.

Note: Totals may not sum to 100 percent due to rounding.

¹ Area source emissions were initially calculated in CalEEMod using default emission factors, then modified based on a more granular consumer products profile for industrial projects, as determined by CARB's 2020 Consumer Product Emission Inventory Categories Update. Emissions were adjusted accordingly to seven percent of the values estimated by CalEEMod using default area source emission factors [CalEEMod Version 2020.4.0 (CAPCOA 2020)].

² Emissions resulting from natural gas usage indicated in CalEEMod estimates were not included, as emissions from sources burning natural gas are accounted for in stationary source emissions estimates.

³ Mobile source emissions were estimated using projected vehicle miles traveled (VMT), as detailed in the Project Description, and EMFAC emissions factors deemed applicable to the Project, as assessed by Trinity Consultants (2023).

⁴ SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), Section 8.3, Table 2 for Non-Permitted Sources.

⁵ Calculated using USEPA AP-42 emissions factors and equipment specifications provided by the Applicant.

⁶ Stationary source ROG emissions presented assume voluntary compliance with the equipment leak standards of 40 CFR 63, Subpart H.

⁷ Stationary source NO_x emissions presented assume the use of emissions control technology, including selective catalytic reduction (SCR) on the Reformer and Auxiliary Boiler.

⁸ SJVAPCD's Guidance for Assessing and Mitigating Air Quality Impacts (SJVAPCD 2015), Section 8.3, Table 2, for Permitted Sources.

In summary, Tables 3 and 4 above demonstrate that when implementing either transportation scenario for operations of the Carbon Zero 1 Project, long-term annual criteria pollutant emissions from both permitted and non-permitted sources are both below SJVAPCD's operational thresholds of significance.

References

- California Air Pollution Control Officers Association (CAPCOA). 2020. California Emissions Estimator Model (CalEEMod) User's Guide, Version 2020.4.0. Prepared by Trinity Consultants, South Coast Air Quality Management District, and other California Air Districts. Available: <http://www.caleemod.com/>.
- California Air Resources Board (CARB). 2021 (January). California EMISSION FACTors (EMFAC) Model, Version 1.0.2 (EMFAC2021). Available: <https://arb.ca.gov/emfac/>.
- California Code of Regulations, Title 14. 2021 (December). Section 15064.7 - Thresholds of Significance. Available: <https://www.law.cornell.edu/regulations/california/14-CCR-Sec-15064-7>.
- City of Riverbank. 2013 (November). Riverbank Army Ammunition Plant (RAAP) Specific Plan EIR. Available: <https://www.riverbank.org/DocumentCenter/View/708/LRA-Specific-Plan-Final-EIR->.
- SJVAPCD. 2015 (February). Guidance for Assessing and Mitigating Air Quality Impacts. Available: <https://www.valleyair.org/transportation/GAMAQI-2015/FINAL-DRAFT-GAMAQI.PDF>.

Appendix B Greenhouse Gas Technical Memo

Greenhouse Gas Emissions

The California Environmental Quality Act (CEQA) Guidelines do not specify that the Lead Agency responsible for reviewing a project under CEQA must establish numerical thresholds for determining whether the project's greenhouse gas (GHG) emissions would have a significant impact on climate change, nor is it mandated that specific mitigation measures be implemented if the impacts are found to be significant (AEP 2022). Rather, the CEQA Guidelines rely on the discretion of the Lead Agency in developing appropriate criteria for evaluating the significance of impacts due to a project's GHG emissions and employing reliable methods of assessment that are consistent with the methodologies used to determine the significance of impacts in other resource areas evaluated under CEQA. The criteria used by the Lead Agency in assessing the significance of a project's impacts on climate change as a result of its GHG emissions must only follow the general recommendations provided in Appendix G of the CEQA Guidelines. These recommendations specify that a project would have a significant environmental impact if it would:

1. Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
2. Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs.

The San Joaquin Valley Air Pollution Control District (SJVAPCD) does not directly regulate GHG emissions through its stationary source permitting process, nor does it enforce specific GHG rules or regulations. However, SJVAPCD has adopted formal guidelines for reviewing a project under CEQA and determining the significance of the impacts on climate change that would result from GHG emissions generated during project construction and/or operations. These guidelines are presented in SJVAPCD's *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009).

In assessing the significance of a project's GHG-related impacts during CEQA review, whether the project has implemented SJVAPCD's recommended Best Performance Standards (BPS) for GHG-emitting sources is evaluated. The BPS were developed by SJVAPCD to ensure that a project implementing the BPS appropriate to each source type would have less-than-significant individual and cumulative impacts on climate change. If a project is found to meet the requirements of the applicable BPS, any impact it might have on climate change due to its GHG emissions would be considered less-than-significant.

As described in the SJVAPCD Guidance, BPS were developed for several source categories such that implementing the relevant BPS would result in at least a 29% reduction in GHG emissions compared to the "business-as-usual" (BAU) scenario that would result if the BPS requirements were not met. This was determined to be the minimum GHG reduction necessary to meet the targets of the California Air Resources Board's AB 32 Scoping Plan, which at the time mandated a statewide reduction of GHG emissions to 1990 levels by 2020.

The SJVAPCD Guidance recommends the following hierarchy for evaluating the impact of a project with respect to its GHG emissions:

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located, would be determined to have a less-than-significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the lead agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review

document adopted by the lead agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement BPS.

- Projects implementing BPS would not require quantification of project specific GHG emissions. Consistent with the CEQA Guidelines, such projects would be determined to have a less-than-significant individual and cumulative impact for GHG emissions.
- Projects not implementing BPS would require quantification of project-specific GHG emissions and demonstration that project-specific GHG emissions reductions of at least 29%, compared to BAU. Projects achieving at least a 29% GHG emission reduction compared to BAU would be considered to have a less-than-significant individual and cumulative impact for GHG emissions.

The Carbon Zero 1 Project (also referred to as the “Facility”) will be located within the former Riverbank Army Ammunition Plant (RAAP). On February 10, 2014, the Riverbank City Council adopted a Specific Plan for the RAAP Site and certified an EIR for the Specific Plan (City of Riverbank 2013). As part of the 2013 RAAP Specific Plan EIR and related technical evaluations, potentially significant impacts were determined for GHG emissions and as such, the RAAP Specific Plan EIR imposed a mitigation measure (GHG-1) to reduce impacts to less-than-significant. The current GHG Technical Report has been prepared to support a California Environmental Quality Act (CEQA) environmental checklist evaluation pursuant to California Public Resources Code (PRC) Section 21166 and CEQA Guidelines Section 15162.

Given the Facility will implement BPS applicable to the project, the impacts of the project’s GHG emissions on climate change are considered less-than-significant, as discussed above. Estimates of project-related GHG emissions presented in this technical report are thus not required by the Lead Agency or SJVAPCD for use in making significance determinations under CEQA. These data are provided in the spirit of transparency and should only be used for informational purposes.

Construction and Operational Emissions

Annual GHG emissions resulting from construction and operations of the Carbon Zero 1 Project were quantified using California Emissions Estimator Model (CalEEMod), Version 2020.4.0 (CAPCOA 2020), as well as mobile source emissions factors from the California Air Resources Board (CARB) Emission FACTors (EMFAC) Model, Version 1.0.2 (CARB 2021). Based on the most current construction scenario provided by the Applicant, construction of the Facility is anticipated to commence in early 2023, once all required permits and approvals are obtained, and will last approximately two years, reaching completion in late 2024. Sources of GHG emissions during construction include on-site building and site-preparation activities, material movement and storage, off-road equipment and vehicle use, and off-site mobile sources, including haul trucks, vendor trucks, and construction worker vehicles.

The Facility is expected to be operational by early 2025. Sources of operational GHG emissions include stationary sources, as further discussed in the Air Quality Technical Report (Appendix A), employee commutes, energy consumption, and GHGs associated with Facility water, waste, and wastewater streams.

Total GHG emissions resulting from construction and operations of the Carbon Zero 1 Project, assuming the use of both rail cars and trucks for product shipments and feedstock deliveries, are summarized below in Table 1, *Carbon Zero 1 Annual GHG Emissions – Assuming Rail & Truck Activity*.

Table 1 Carbon Zero 1 Project Annual GHG Emissions – Assuming Rail & Truck Activity

Category	GHG Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Construction Emissions				
2023 Construction	2,375	0.37	0.015	2,389
2024 Construction	2,682	0.41	0.016	2,697
Total Construction Emissions	5,057	0.78	0.031	5,086
Operational Emissions				
<u>Stationary Biogenic Sources</u> ¹				
Reformer Process	—	—	—	273,007
Fuel Gas Combustion	—	—	—	144,379
Total Biogenic Emissions	—	—	—	417,386
<u>Stationary Non-Biogenic Sources</u> ¹				
Natural Gas Combustion	—	—	—	52,887
Diesel Fuel Combustion	56	3.8	1.6	615
Total Non-Biogenic Emissions	—	—	—	53,503
Area Sources	0.022	<0.01	0.0	0.023
Energy Usage ²	10,942	1.8	0.21	11,050
Mobile Sources ³	545	0.002	0.061	563
Solid Waste ⁴	13	0.74	0.0	31
Water and Wastewater ⁴	9.5	0.38	<0.01	22
Locomotive (Haul-Line and Switcher) ⁵	10,184	0.41	0.083	10,219
Total Annual Operational Emissions	—	—	—	492,774

Source: Geosyntec, 2023.

Notes: Totals may not sum to 100 percent due to rounding.

¹ Calculated using USEPA AP-42 emissions factors and equipment specifications provided by the Applicant.

² GHG emissions resulting from natural gas usage were not included, as emissions from all sources burning natural gas (i.e. stationary sources) are accounted for in stationary source emissions estimates.

³ Mobile source emissions were estimated using projected vehicle miles traveled (VMT), as detailed in the Project Description, and EMFAC emissions factors deemed applicable to the Project.

⁴ CalEEMod Version 2020.4.0.

⁵ Calculated using a SJVAPCD-approved methodology for estimating locomotive emissions based on CARB emissions profiles and guidance provided to Trinity Consultants, which was incorporated into a proprietary emissions estimation tool developed by Trinity (Trinity 2023).

Total GHG emissions resulting from construction and operations of the Carbon Zero 1 Project, assuming only trucks are used for product shipments and feedstock deliveries, are summarized in Table 2 below, *Carbon Zero 1 Project Annual GHG Emissions – Assuming Truck Activity Only*.

Table 2 Carbon Zero 1 Project Annual GHG Emissions – Assuming Truck Activity Only

Category	GHG Emissions (Metric Tons per Year)			
	CO ₂	CH ₄	N ₂ O	CO ₂ e
Construction Emissions				
2023 Construction	2,375	0.37	0.015	2,389
2024 Construction	2,682	0.41	0.016	2,697
Total Construction Emissions	5,057	0.78	0.031	5,086
Operational Emissions				
<u>Stationary Biogenic Sources</u> ¹				
Reformer Process	—	—	—	273,007
Fuel Gas Combustion	—	—	—	144,379
Total Biogenic Emissions	—	—	—	417,386
<u>Stationary Non-Biogenic Sources</u> ¹				
Natural Gas Combustion	—	—	—	52,887
Diesel Fuel Combustion	56	3.8	1.6	615
Total Non-Biogenic Emissions	—	—	—	53,503
Area Sources	0.022	<0.01	0.0	0.023
Energy Usage ²	10,942	1.8	0.21	11,050
Mobile Sources ³	8,541	0.007	1.3	8,934
Solid Waste ⁴	13	0.74	0.0	31
Water and Wastewater ⁴	9.5	0.38	<0.01	22
Total Annual Operational Emissions	—	—	—	490,926

Source: Geosyntec, 2023.

Notes: Totals may not sum to 100 percent due to rounding.

¹ Calculated using USEPA AP-42 emissions factors and equipment specifications provided by the Applicant.

² GHG emissions resulting from natural gas usage were not included, as emissions from all sources burning natural gas (i.e. stationary sources) are accounted for in stationary source emissions estimates.

³ Mobile source emissions were estimated using projected vehicle miles traveled (VMT), as detailed in the Project Description, and EMFAC emissions factors deemed applicable to the Project.

⁴ CalEEMod Version 2020.4.0.

Approximately 5,086 metric tons of carbon dioxide equivalents (MT-CO₂e) will be emitted as a result of the project over its two-year construction period. As with the criteria pollutant emissions described in the Air Quality Technical Report (Appendix A), the generation of GHG emissions during construction of the Facility will be temporary, lasting only for the duration of the two-year construction period, and does not represent a long-term, continuous source of GHGs.

The estimated annual operational GHG emissions generated by the Facility are 492,774 MT-CO₂e per year, assuming both trucks and locomotive-driven rail cars were used for product shipments and feedstock deliveries, and 490,926 MT-CO₂e per year if only trucks were used. In alignment with SJVAPCD's CEQA Guidance, the Facility will reduce its GHG emissions by implementing BPS, thereby reducing its impact on climate change.

The following Mitigation Measure from the project evaluated in the RAAP Specific Plan EIR is applicable.

Mitigation Measure GHG-1

The project [as described in the RAAP Specific Plan EIR] shall be analyzed for significant GHG impacts. The project will implement appropriate BPS or demonstrate a 29 percent GHG emission reduction compared to a business-as-usual (BAU) scenario. Means of mitigating GHG impacts to a less-than-significant level include, but are not limited to, technological controls for stationary sources (such as for boilers, generators, and process heaters), and GHG emissions reduction strategies (such as energy efficiency, transportation, and site design measures) for development projects listed in the SJVAPCD Climate Change Action Plan (CCAP, SJVAPCD 2008).

Consistent with Mitigation Measure GHG-1 of the RAAP Specific Plan EIR, representative SJVAPCD BPS that are deemed applicable to the Facility, as described below, will be implemented to reduce GHG emissions associated with the Carbon Zero 1 Project, thus aligning the project with California's statewide GHG reduction goals.

SJVAPCD Best Performance Standards (BPS)

New Industrial Steam Generators (applies to 184 MMBtu/hr Reformer and 59 MMBtu/hr Auxiliary Boiler)

- The steam generator shall be either equipped with an economizer system meeting the following design criteria or shall be equipped with an approved alternate heat recovery system which will collectively provide heat recovery from the boiler flue gas which is equivalent.
- Equivalent heat recovery systems may utilize recovered heat for purposes other than steam generation provided such uses offset other fuel usage which would otherwise be required.
- Except for steam generators subject to the requirements of item below, the economizer system shall be designed at maximum steam generator firing rate to either 1) reduce the temperature of the economizer flue gas outlet to a value no greater than 90°F above the temperature of the boiler feed water or 2) heat the boiler feed water to a temperature which is no less than the saturation temperature of the steam at the pressure of the steam separator, or 3) reduce the final temperature of the boiler's flue gas to a temperature no greater than 300°F.
- For steam generators with rated capacity in excess of 20 MMBtu/hr which have an average water supply temperature which is equal to or less than 150°F, the steam generator shall be equipped with an economizer designed to reduce the temperature of the flue gas outlet to a value no greater than 90°F above the water supply temperature when the boiler is operating at maximum firing rate.
- Electric motors driving combustion air fans or induced draft fans shall meet the National Electrical Manufacturer's Association (NEMA) standards for "premium efficiency" motors and each one shall be operated with a variable speed control or equivalent for control of flow through the fan.

Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants

- Minimize fugitive GHG emissions by applying leak standards and I&M requirements to components subject to Rule 4455 (Components at Petroleum Refineries, Gas Liquids Processing Facilities, and Chemical Plants).

Two 7.6 MMBtu/hr Thermal Oxidizers (Contaminated air stream \leq 32 % LEL)

- Direct Fired Thermal Oxidizer: A concentrator is not required for influent contaminated air streams with flow rates of less than 15,000 scfm, humidity levels of 80% or greater, temperatures of over 100 degrees F, air streams with VOCs that will not adsorb at a rate of at least 95% by weight, or air streams with VOCs that would damage or significantly diminish the performance of the adsorption material.

Additionally, the essential purpose of the Facility is to produce renewable diesel (RD) and sustainable aviation fuel (SAF), both of which have a low carbon intensity (CI) as compared to traditional petroleum-based fuels. The CI of a fuel is calculated based on a “lifecycle assessment” (LCA) of the fuel’s GHG emissions, which quantifies all GHG emissions that are associated with the fuel over its lifetime, including GHGs emitted during feedstock production and transportation, plant processes involved in fuel production, and the ultimate combustion of the fuel. Therefore, a fuel with a CI lower than traditional petroleum-based fuels necessarily reduces overall GHG emissions. The average CI for RD, measured in grams of carbon dioxide equivalent per megajoule ($\text{gCO}_2\text{e/MJ}$), ranges from approximately 10 to 40 $\text{gCO}_2\text{e/MJ}$ (Riazi et al. 2020), while the CI for SAF ranges from approximately 20 to 40 $\text{gCO}_2\text{e/MJ}$ (Prussi, et al. 2021), depending on the specific lifecycle pathway and feedstocks. For reference, the CIs of conventional petroleum-based diesel fuel and jet fuel are roughly 95 $\text{gCO}_2\text{e/MJ}$ and 85-95 $\text{gCO}_2\text{e/MJ}$, respectively.

Production of low-CI fuels such as RD and SAF as alternates to traditional fossil fuels will ultimately help California meet its Low Carbon Fuel Standard (LCFS) for transportation fuels. The LCFS program calculates the average CI of all transportation fuels used in the State, and sets CI reduction targets relative to the CI values of baseline fuels, which gradually decline each year. Per California Code of Regulations Title 17, Section 95484, Annual Carbon Intensity Benchmarks (17 CCR §95484), the 2025 target CI for SAF and RD is 86.6 $\text{gCO}_2\text{e/MJ}$. The CI values for ultra-low-sulfur diesel (ULSD) fuel and conventional petroleum-based jet fuel, using 2010 as a base year, are 100.5 $\text{gCO}_2\text{e/MJ}$ and 89.4 $\text{gCO}_2\text{e/MJ}$, respectively. Fuels produced with a CI lower than the required benchmark set by the State help it meet the CI target.

The carbon intensities of RD and SAF produced by the Carbon Zero 1 Project are expected to be lower than other liquid fuels produced in the State of California, based on the LCA approach, and thus production of these low-CI fuels will help California in achieving a statewide reduction in GHG emissions as well as meeting its LCFS goals. In addition to supplying low-CI fuels to consumers, The Carbon Zero 1 Project will also implement BPS applicable to the Facility, as discussed above, including BPS for boilers, process heaters, chemical processing facilities, and other applicable equipment, and will thus be in alignment with the goals of the SJVAPCD CCAP and further help California meet its statewide GHG reduction goals.

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