

# **AGENDA**

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- The Board President will call the item and staff will begin the staff report.
- Click on the Raise Hand icon if you would like to speak on the item.
- Your name will be called on when it's your turn to speak.
- When your name is called, you will be prompted to unmute yourself.
- When your time is up, you will be muted.
- You will repeat this process for each item you want to speak on.

### **FOR OPEN SESSION PARTICIPATION**

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**Meeting ID: 852 9679 4343**

**Passcode: 228081**

**A G E N D A**  
REGULAR MEETING OF THE GOVERNING BOARD  
OF THE GOLETA SANITARY DISTRICT  
A PUBLIC AGENCY

One William Moffett Place  
Goleta, California 93117

May 2, 2022

**CALL TO ORDER:** 6:30 p.m.

**ROLL CALL OF MEMBERS**

**BOARD MEMBERS:** Steven T. Majoewsky  
George W. Emerson  
Sharon Rose  
Edward Fuller  
Jerry D. Smith

**CONSIDERATION OF THE MINUTES OF THE BOARD MEETING**

The Board will consider approval of the Minutes of the Regular Meeting of April 18, 2022.

**PUBLIC COMMENTS** - Members of the public may address the Board on items within the jurisdiction of the Board.

**POSTING OF AGENDA** – The agenda notice for this meeting was posted at the main gate of the Goleta Sanitary District and on the District’s web site 72 hours in advance of the meeting.

**BUSINESS:**

1. CONSIDERATION OF APPROVAL OF RESOLUTION No. 22-682 ADOPTING FINDINGS, APPROVING PRELIMINARY ENVIRONMENTAL REVIEW FORM AND ENVIRONMENTAL IMPACT ASSESSMENT, AND RATIFYING AND APPROVING PREPARATION OF A MITIGATED NEGATIVE DECLARATION FOR THE BIOSOLIDS AND ENERGY STRATEGIC PLAN PHASE 1 PROJECT  
(Board may take action on this item.)
2. PUBLIC HEARING ON BIOSOLIDS & ENERGY STRATEGIC PLAN PHASE 1 PROJECT DRAFT MITIGATED NEGATIVE DECLARATION

3. CONSIDERATION OF CAPITAL IMPROVEMENT PROJECT FINANCING PROPOSAL FOR BIOSOLIDS AND ENERGY STRATEGIC PLAN PROJECTS  
(Board may take action on this item.)
4. CONSIDERATION OF DRAFT CLIMATE ADAPTATION PLAN  
(Board may take action on this item.)
5. GENERAL MANAGER'S REPORT
6. LEGAL COUNSEL'S REPORT
7. COMMITTEE/DIRECTOR'S REPORTS AND APPROVAL/RATIFICATION OF DIRECTOR'S ACTIVITIES
8. PRESIDENT'S REPORT
9. ITEMS FOR FUTURE MEETINGS
10. CORRESPONDENCE  
(The Board will consider correspondence received by and sent by the District since the last Board Meeting.)
11. APPROVAL OF BOARD COMPENSATION AND EXPENSES AND RATIFICATION OF CLAIMS PAID BY THE DISTRICT  
(The Board will be asked to ratify claims.)

## **ADJOURNMENT**

***Any public records which are distributed less than 72 hours prior to this meeting to all, or a majority of all, of the District's Board members in connection with any agenda item (other than closed sessions) will be available for public inspection at the time of such distribution at the District's office located at One William Moffett Place, Goleta, California 93117.***

# MINUTES

**MINUTES**  
REGULAR MEETING OF THE GOVERNING BOARD  
GOLETA SANITARY DISTRICT  
A PUBLIC AGENCY  
DISTRICT OFFICE CONFERENCE ROOM  
ONE WILLIAM MOFFETT PLACE  
GOLETA, CALIFORNIA 93117

April 18, 2022

- CALL TO ORDER:** President Majoewsky called the meeting to order at 6:31 p.m.
- BOARD MEMBERS PRESENT:** Steven T. Majoewsky, George W. Emerson, Sharon Rose, Edward Fuller, Jerry D. Smith
- BOARD MEMBERS ABSENT:** None
- STAFF MEMBERS PRESENT:** Steve Wagner, General Manager/District Engineer, Rob Mangus, Finance and Human Resources Manager/Board Secretary and Richard Battles, Legal Counsel from Howell Moore & Gough LLP.
- OTHERS PRESENT:** Larry Meyer, Director, Goleta West Sanitary District  
Tom Evans, Director, Goleta Water District
- APPROVAL OF MINUTES:** Director Rose made a motion, seconded by Director Smith, to approve the minutes of the Regular Board meeting of 04/04/22. The motion carried by the following vote:
- (22/04/2314)
- AYES: 5 Majoewsky, Emerson, Rose,  
Fuller, Smith
- NOES: None
- ABSENT: None
- ABSTAIN: None
- POSTING OF AGENDA:** The agenda notice for this meeting was posted at the main gate of the Goleta Sanitary District and on the District's website 72 hours in advance of the meeting.
- PUBLIC COMMENTS:** None
- BUSINESS:**
1. **PRESENTATION OF CAPITAL IMPROVEMENT PROJECT FINANCING PROPOSAL FOR BIOSOLIDS AND ENERGY STRATEGIC PLAN PROJECTS**  
Mr. Wagner began the staff report and introduced Julio Morales, Managing Director of Urban Futures, Inc. who gave a PowerPoint presentation to the Board.

Director Smith made a motion, seconded by Director Fuller to authorize the General Manager to engage Urban Futures, Inc. and initiate the process to pursue a private placement loan to fund the Biosolids and Energy Strategic Plan Projects and return with the necessary actionable items for consideration.

The motion carried by the following vote:

(22/04/2315)

AYES: 5 Majoewsky, Emerson, Rose, Fuller, Smith  
NOES: None  
ABSENT: None  
ABSTAIN: None

2. CONSIDERATION OF PENSION LIABILITY MANAGEMENT STRATEGIES

Mr. Wagner began the staff report and Mr. Morales answered questions from the Board.

Director Rose made a motion, seconded by Director Smith to direct staff to meet with the entities that share capacity in the treatment plant and proceed with setting up an interfund loan to make a paydown payment toward the District's unfunded accrued liability to the California Public Employees Retirement System (CalPERS).

The motion carried by the following vote:

(22/04/2316)

AYES: 5 Majoewsky, Emerson, Rose, Fuller, Smith  
NOES: None  
ABSENT: None  
ABSTAIN: None

3. CONSIDERATION OF COST OF LIVING ADJUSTMENT TO COMPENSATION FOR ALL DISTRICT EMPLOYEES FOR FISCAL YEAR 2022-23

Mr. Wagner gave the staff report.

Director Smith made a motion, seconded by Director Rose to move this item after the closed session.

The motion carried by the following vote:

(22/04/2317)

AYES: 5 Majoewsky, Emerson, Rose, Fuller, Smith  
NOES: None  
ABSENT: None

ABSTAIN:           None

4.    CLOSED SESSION

Consensus of the Board was to move the Closed Session item to the end of the meeting.

5.    GENERAL MANAGER'S REPORT

Mr. Wagner gave the report.

6.    LEGAL COUNSEL'S REPORT

Mr. Battles reported on Government Code Section 1780 regarding Board vacancies, as a follow-up to the District-Based Elections action at the prior Board meeting.

7.    COMMITTEE/DIRECTORS' REPORTS AND APPROVAL/RATIFICATION OF DIRECTORS' ACTIVITIES

Director Smith – Reported he attended the Finance Committee meeting.

Director Fuller – Reported he attended the Finance Committee meeting.

Director Emerson – No report.

Director Rose – Reported on the forthcoming Santa Barbara County Local Chapter CSDA meeting.

8.    PRESIDENT'S REPORT

President Majoewsky – Reported on the Goleta Water District meeting he attended.

9.    ITEMS FOR FUTURE MEETINGS

No Board action was taken to return with an item.

10.   CORRESPONDENCE

The Board reviewed and discussed the list of correspondence to and from the District in the agenda.

11.   APPROVAL OF BOARD COMPENSATION AND EXPENSES AND RATIFICATION OF CLAIMS PAID BY THE DISTRICT

Director Smith made a motion, seconded by Director Rose, to ratify and approve the claims, for the period 04/05/22 to 04/18/22 as follows:

Running Expense Fund #4640

\$ 422,648.48



Capital Reserve Fund #4650	\$	24,790.63
Depreciation Replacement Reserve Fund #4655	\$	44,532.70

The motion carried by the following vote:

(22/04/2318)

AYES:	5	Majoewsky, Emerson, Rose, Fuller, Smith
NOES:		None
ABSENT:		None
ABSTAIN:		None

12. CLOSED SESSION

- (i) PUBLIC COMMENTS ON CLOSED SESSION ITEM. No comments were received.
- (ii) DESIGNATION OF STEVE WAGNER, GENERAL MANAGER, AS DISTRICT REPRESENTATIVE FOR LABOR NEGOTIATIONS

President Majoewsky called a recess at 8:35 p.m.

President Majoewsky called the meeting to order at 8:39 p.m.

The Board entered closed session at 8:40 p.m.

- (iii) CLOSED SESSION PURSUANT TO GOVERNMENT CODE SECTION 54957.6 CONFERENCE WITH LABOR NEGOTIATOR REGARDING EMPLOYEE REQUESTS FOR MODIFICATIONS TO COMPENSATION AND BENEFITS  
AGENCY DESIGNATED REPRESENTATIVE: STEVE WAGNER, GENERAL MANAGER  
EMPLOYEES: ALL EMPLOYEE TITLES  
(Board may take action on this item.)

The Board exited closed session at 9:30 p.m.

- (iv) PUBLIC REPORT ON CLOSED SESSION

No reportable action in closed session.

The Board returned to item 3, Consideration of Cost of Living adjustment to compensation for all District employees for Fiscal Year 2022-23.

Director Rose made a motion, seconded by Director Fuller to authorize and approve a cost of living adjustment (COLA) of 5.5% for FY 2022-23 effective July 1, 2022 and direct staff to return with a resolution and revised pay scale for approval.

The motion carried by the following vote:

(22/04/2319)

AYES:	5	Majoewsky, Emerson, Rose, Fuller, Smith
NOES:		None
ABSENT:		None
ABSTAIN:		None

**ADJOURNMENT**

There being no further business, the meeting was adjourned at 9:35 p.m.

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Steven T. Majoewsky  
Governing Board President

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Robert O. Mangus, Jr.  
Governing Board Secretary

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George W. Emerson

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Sharon Rose

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Edward Fuller

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Jerry D. Smith

# **AGENDA ITEM #1**

**AGENDA ITEM: 1**

**MEETING DATE: May 2, 2022**

**I. NATURE OF ITEM**

Consideration of Approval of Resolution No. 22-682 Adopting Findings, Approving Preliminary Environmental Review Form and Environmental Impact Assessment, and Ratifying and Approving Preparation of a Mitigated Negative Declaration for the Biosolids and Energy Strategic Plan Phase 1 Project

**II. BACKGROUND INFORMATION**

In November 2020 the District hired Hazen and Sawyer Inc. (Hazen) to perform engineering design and environmental services of the Biosolids and Energy Strategic Plan (BESP) Phase 1 project. This effort has been completed.

The District's Environmental Committee has reviewed the project and determined that the project is subject to the California Environmental Quality Act (CEQA) and, based on an environmental assessment, the preparation of a Mitigated Negative Declaration is required.

The District has adopted the State's California Environmental Quality Act (CEQA) guidelines and has also adopted its own environmental review procedures to adapt the CEQA guidelines to the specific operations of the District. The attached environmental assessment is typically performed as soon as the scope of the project is finalized so that the Board authorize the recommended approach to meeting the CEQA requirements on the project. While the Board approved the agreement with Hazen to prepare the required CEQA document for the BESP Phase 1 project, the environmental assessment has not been brought to the Board for consideration.

**III. COMMENTS AND RECOMMENDATIONS**

Staff recommends the Board approve Resolution 22-682 to adopting findings, approving the Preliminary Environmental Review Form and Environmental Impact Assessment, and ratify and approve the preparation of a Mitigated Negative Declaration for the Biosolids and Energy Strategic Plan Phase 1 Project.

**IV. REFERENCE MATERIAL**

Resolution No. 22-682 Adopting Findings, Approving the Preliminary Environmental Review Form and Environmental Impact Assessment, and Ratifying and Approving the Preparation of a Mitigated Negative Declaration for the Biosolids and Energy Strategic Plan Phase 1 Project.

**RESOLUTION NO. 22-682**

**RESOLUTION OF THE GOVERNING BOARD OF THE GOLETA  
SANITARY DISTRICT ADOPTING FINDINGS, APPROVING PRELIMINARY  
ENVIRONMENTAL REVIEW FORM AND ENVIRONMENTAL IMPACT  
ASSESSMENT, AND RATIFYING AND APPROVING PREPARATION OF  
MITIGATED NEGATIVE DECLARATION FOR THE BIOSOLIDS AND  
ENERGY STRATEGIC PLAN PHASE 1 PROJECT**

WHEREAS, the Goleta Sanitary District's Environmental Committee has conducted a preliminary review of the Biosolids and Energy Strategic Plan Phase 1 Project (the "Project") and has concluded that (i) the District is the lead agency under the California Environmental Quality Act ("CEQA"), (ii) this activity is a project which has the potential for causing a significant effect on the environment, and (iii) the Project requires further evaluation under CEQA of the possible significant environmental effects. Said conclusions are set forth in the Preliminary Environmental Review form prepared by the Environmental Committee, a copy of which is attached hereto as Exhibit "A".

WHEREAS, based on the results of the preliminary review, the Environmental Committee conducted an initial study which determined that the Project may have a significant effect on the environment. The Environmental Committee therefore recommended the preparation of a mitigated negative declaration ("MND") for the Project. Said recommendation is set forth in the Environmental Impact Assessment prepared by the Environmental Committee, a copy of which is attached hereto as Exhibit "B". The Environmental Committee also arranged for the preparation of an MND, a draft copy of which has been presented to the District's Governing Board.

WHEREAS, the District's Governing Board desires to (i) set forth its findings with respect to the Project, (ii) approve the Preliminary Environmental Review form and the Environmental Impact Assessment, and (iii) ratify and approve the preparation of the MND.

NOW, THEREFORE, BE IT RESOLVED by the Governing Board of the Goleta Sanitary District as follows:

1. The Governing Board hereby finds that the Project is subject to environmental review pursuant to CEQA and that the District is the lead agency.

2. The Governing Board hereby approves the Preliminary Environmental Review form attached hereto as Exhibit "A" and the Environmental Impact Assessment attached hereto as Exhibit "B".

3. The Governing Board hereby ratifies and approves the preparation of the MND for the Project.

PASSED AND ADOPTED this 2<sup>nd</sup> day of May 2022, by the following vote of the Governing Board of the Goleta Sanitary District:

AYES:

NOES:

ABSENT:

ABSTAIN:

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Steven T. Majoewsky,  
Governing Board President

ATTEST:

---

Robert O. Mangus, Jr.,  
Governing Board Secretary

EXHIBIT "A"  
PRELIMINARY ENVIRONMENTAL REVIEW  
GOLETA SANITARY DISTRICT

One William Moffett Place  
Goleta, CA 93117  
(805) 967-4519

Name of Project: Biosolids and Energy Strategic Plan Phase 1 Project

Location: 1 William Moffett Place, Goleta CA 93117

Entity or Person Undertaking Project: (Check appropriate box)

Goleta Sanitary District

Other: Name: \_\_\_\_\_

Address: \_\_\_\_\_

Environmental Committee Determination:

The District's Environmental Committee, having undertaken and completed a preliminary review of this proposed activity in accordance with the California Quality Act Guidelines ("CEQA Guidelines") has concluded that:

A. The activity does not require further environmental assessment because:

1. The proposed action does not constitute a project under the CEQA Guidelines Section 15378 or is statutorily exempt.

2. The project constitutes a feasibility or planning study under CEQA Guidelines Section 15262.

3. The project is an Emergency Project under CEQA Guidelines Section 15269.

4. The project is a Ministerial Project under CEQA Guidelines Section 15268.

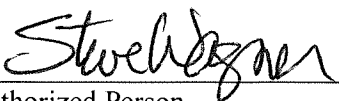
5. The project is Categorical Exempt under CEQA Guidelines Section \_\_\_\_\_.

6. The project involves another public agency which constitutes the lead agency.

Name of Lead Agency \_\_\_\_\_

B. The District is the lead agency and the activity is a project which requires further evaluation of the possible significant effects on the environment.

Date: 4/25/22

  
\_\_\_\_\_  
Authorized Person

General Manager/District Engineer  
Title

EXHIBIT "B"  
ENVIRONMENTAL IMPACT ASSESSMENT  
GOLETA SANITARY DISTRICT

One William Moffett Place  
Goleta, CA 93117  
(805) 967-4519

Name of Project: Biosolids and Energy Strategic Plan Phase 1 Project

Location: 1 William Moffett Place, Goleta CA 93117

Entity or Person Undertaking Project: (Check appropriate box)

Goleta Sanitary District

Other: Name: \_\_\_\_\_

Address: \_\_\_\_\_

Environmental Committee Determination:

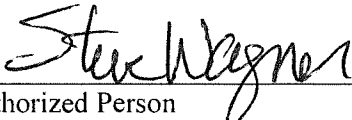
The District's Environmental Committee, having undertaken and completed an initial study of this project for the purpose of ascertaining whether the proposed project might have a significant effect on the environment, has reached the following conclusion:

1. The project will not have a significant effect on the environment; therefore, a negative declaration should be prepared.

2. The project, if modified in accordance with certain mitigation measures, will not have a significant effect on the environment. Upon completion of such procedures as may be necessary to assure such modification, a negative declaration should be prepared.

3. The project may have a significant effect on the environment; therefore, an EIR will be required.

Date: 4/25/22

  
\_\_\_\_\_  
Authorized Person

General Manager/District Engineer  
Title



# **AGENDA ITEM #2**

**AGENDA ITEM: 2**

**MEETING DATE: May 2, 2022**

**I. NATURE OF ITEM**

Public Hearing on Biosolids & Energy Strategic Plan Phase 1 Project Draft Mitigated Negative Declaration

**II. BACKGROUND INFORMATION**

In August, 2019, the District adopted a Biosolids and Energy Strategic Plan (BESP). The main objective of the BESP was to provide a biosolids and energy roadmap and strategy for the District to reach energy sufficiency by reassessing their biosolids management practices in combination with the implementation of various energy production approaches to reduce overall operating costs. The BESP envisioned 3 separate phases of improvement projects to be completed over the following 10-year period based on certain market and regulatory drivers.

In November, 2020, the District hired Hazen and Sawyer Inc. (Hazen) for engineering, design and environmental services related to the Biosolids and Energy Strategic Plan (BESP) Phase 1 improvement project. The scope of the project includes the following:

- A new anaerobic digester with a capacity of 550,000 gallons, which will replace the existing Digester #1. The new digester will include the installation of auxiliary equipment, including digester mixing apparatus, digester cover, and digester heating elements (heat exchanger, piping, etc.). This new digester is designed to allow sufficient capacity for the plant if any of the existing digesters, including the largest digester (i.e., Digester 3), goes out of service.
- A combined heat and power (CHP) system featuring one new 160-kilowatt (kW) generator set that will be fueled by digester gas. Waste heat from the CHP engine will be used to heat the digesters. Additionally, the two existing digester gas booster blowers will be replaced with two new blowers to match the engine.
- A biogas pretreatment system to reduce hydrogen sulfide (H<sub>2</sub>S), siloxanes, and moisture in the digester gas used to fuel the CHP engine.

The design and engineering on the BESP Phase 1 project have been completed and a Mitigated Negative Declaration (MND) has been prepared and released for public comment.

The purpose of this hearing is to receive public comments on the draft MND.

### **III. COMMENTS AND RECOMMENDATIONS**

In accordance with the District's environmental review guidelines, a preliminary environmental review and assessment of the BESP Phase 1 project was completed by staff. The assessment confirmed that the proposed project is subject to the California Environmental Quality Act (CEQA) and that an MND should be prepared.

The attached Mitigated Negative Declaration has been prepared in accordance with the CEQA provisions as set forth in the California Public Resources Code (PRC) Sections 21000 to 21174. In accordance with the California Code of Regulations (CCR) Title 14 Section 15002(a) CEQA Guidelines, the basic purposes of CEQA are to inform public agency decisionmakers and the general public of the significant environmental effects of a project, identify possible ways to minimize the significant effects through the use of mitigation measures or alternatives to the project, and disclose to the public the reasons why a government agency approved the project if significant environmental effects are involved.

An MND for a project subject to CEQA is prepared when an environmental analysis of the project shows that there is no substantial evidence that the project may have a significant effect on the environment after mitigation [CEQA Guidelines Section 15070(b)]. As discussed in Chapter 3 – Environmental Checklist, the proposed project is not expected to result in any significant adverse environmental impacts after mitigation; therefore, an MND is the appropriate CEQA document.

Sarah Head of York Engineering has coordinated the environmental review and permitting of the BESP Phase 1 project. Sara will attend the meeting in person to provide an overview of the proposed project along with the proposed mitigation measures included in the draft MND.

### **IV. REFERENCE MATERIALS**

Draft Mitigated Negative Declaration for the Biosolids and Energy Phase 1 Project, January 2022



**GOLETA SANITARY**  
Water Resource Recovery District

**One William Moffett  
Place**

**Goleta, CA 93117**

**SCH # 2022040242**

**March 2022**

**Prepared by:  
Hazen and Sawyer,  
Dudek, and**

**Yorke**  
**ENGINEERING, LLC**  
[www.YorkeEngr.com](http://www.YorkeEngr.com)

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**Mitigated Negative Declaration  
for Biosolids and Energy Phase 1 Project**

# **Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project**

Prepared for:  
**Goleta Sanitary District  
One William Moffett Place  
Goleta, CA 93117**

Prepared by:  
**Hazen and Sawyer,  
Dudek, and  
Yorke Engineering, LLC**

State Clearing House Number:  
2022040242

March 2022

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JANUARY 2021)**

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## List of Acronyms and Abbreviations

AB	Assembly Bill
AMSL	Above Mean Sea Level
ANSI	American National Standards Institute
APN	Assessor's Parcel Number
AQIA	Air Quality Impact Analysis
ATC	Authority to Construct
BACT	Best Available Control Technology
BARCT	Best Available Retrofit Control Technology
BBCI	Barbareño Band of Chumash Indians
BMP	Best Management Practice
BVBMI	Barbareño/Ventureño Band of Mission Indians
CA	California
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standard
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model <sup>®</sup>
CAP	Clean Air Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CBC	California Building Code
CCAA	California Clean Air Act
CCC	California Coastal Commission
CCIC	Central Coast Information Center
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CDP	Coastal Development Permit
CEQA	California Environmental Quality Act
CERS	California Environmental Reporting System
CFR	Code of Federal Regulations
CGS	California Geological Survey
CH <sub>4</sub>	Methane
CHP	Combined Heat and Power
CHRIS	California Historic Resources Information System
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	Carbon Monoxide
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2e</sub>	Carbon Dioxide Equivalent
CRHR	California Register of Historical Resources

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CRPR	California Rare Plant Ranking
CSA	Canadian Standards Association
CSNC	California Sensitive Natural Communities
CUL	Cultural
CUP	Conditional Use Permit
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWR	Clean Water Rule
CY	Cubic Yard
dB	Decibel
dba	A-Weighted Decibel
DPM	Diesel Particulate Matter
DTSC	[California] Department of Toxic Substances Control
DVP	Development Plan Review
DWR	[California] Department of Water Resources
EIR	Environmental Impact Report
EPA	[United States] Environmental Protection Agency
ESCP	Erosion and Sediment Control Plan
ESH	Environmentally Sensitive Habitat
ESRI	Environmental Systems Research Institute
FAA	Federal Aviation Administration
FE	Federally Endangered
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FP	Fully Protected
FT	Federally Threatened
GHG	Greenhouse Gas
GSD	Goleta Sanitary District
H <sub>2</sub> S	Hydrogen Sulfide
HMBP	Hazardous Materials Business Plan
hp	Horsepower
HRA	Health Risk Assessment
HSW	High Strength Waste
HVAC	Heating, Ventilation, and Air Conditioning
Hz	Hertz
I&C	Instrumentation and Control
kW	Kilowatt
LACM	Natural History Museum of Los Angeles County
LEA	Local Enforcement Agency
LSG	Low Pressure Sludge Gas
LTS	Less Than Significant

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LTSM	Less Than Significant with Mitigation Incorporated
MAD	Mesophilic Anaerobic Digester
MCV2	Manual of California Vegetation, Second Edition
MGD	Million Gallons per Day
MLD	Most Likely Descendent
MM	Mitigation Measure
MMBtu	Million British Thermal Units
MMRP	Mitigation Monitoring and Reporting Program
MND	Mitigated Negative Declaration
mph	Miles per Hour
MS4	Municipal Separate Storm Sewer System
MSG	Medium Pressure Sludge Gas
MT	Metric Ton
NAAQS	National Ambient Air Quality Standard
NAHC	Native American Heritage Commission
NIOSH	National Institute for Occupational Safety and Health
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Oxides of Nitrogen
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
O <sub>3</sub>	Ozone
OHP	[California] Office of Historic Preservation
OSHA	Occupational Safety and Health Administration
PDR	Preliminary Design Report
PM <sub>10</sub>	Respirable Particulate Matter (Less Than 10 Microns in Size)
PM <sub>2.5</sub>	Fine Particulate Matter (Less Than 2.5 Microns in Size)
PMPLC	Power and Maintenance Programmable Logic Controller
ppm	Parts per Million
PRC	Public Resources Code
PRIMP	Paleontological Resources Impact Mitigation Program
PS	Primary Sludge
PSD	Prevention of Significant Deterioration
PTO	Permit to Operate
ROC	Reactive Organic Compound
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SBA	Santa Barbara Municipal Airport
SBCAG	Santa Barbara County Association of Governments
SBCAPCD	Santa Barbara County Air Pollution Control District
SBCP&D	Santa Barbara County Planning and Development
SCADA	Supervisory Control and Data Acquisition

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SCE	Southern California Edison
scfm	Standard Cubic Feet per Minute
SE	State Endangered
SGMA	Sustainable Groundwater Management Act
SIP	State Implementation Plan
SMARA	Surface Mining and Reclamation Act
SNR	State Not Ranked
SO <sub>2</sub>	Sulfur Dioxide
SO <sub>x</sub>	Oxides of Sulfur
SRS	Scientific Resource Surveys, Inc.
SSC	Species of Special Concern
SVP	Society of Vertebrate Paleontology
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SYBCI	Santa Ynez Band of Chumash Indians
TAC	Toxic Air Contaminant
TCR	Tribal Cultural Resource
TMDL	Total Maximum Daily Load
TWAS	Thickened Waste Activated Sludge
UCSB	University of California, Santa Barbara
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VMT	Vehicle Miles Traveled
WAS	Waste Activated Sludge
WEAP	Worker Environmental Awareness Program
WRRF	Water Resource Recovery Facility
µg/m <sup>3</sup>	Microgram per Cubic Meter

# Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project

## 1.0 INTRODUCTION

### 1.1 Project Overview

Goleta Sanitary District (GSD) owns and operates the Goleta Water Resource Recovery Facility (WRRF) located at One William Moffett Place, near the Santa Barbara Municipal Airport in an unincorporated coastal area of Santa Barbara County, California. GSD is a special services district that provides wastewater collection, treatment, and disposal services to residents and businesses within the Goleta Valley.

The GSD WRRF has an annual average design flow capacity to treat 9.6 million gallons per day (MGD) of wastewater but is currently treating an annual average flow of approximately 4.9 MGD. The treatment process at the WRRF begins with bar screens to remove large debris, as well as aerated grit tanks and two cyclone separators to remove grit and sand. The wastewater then flows into three primary clarifiers for solids removal prior to secondary treatment. The secondary treatment at the WRRF includes biofilters, three aeration basins, and four secondary clarifiers.

An assessment of the WRRF conducted in 2016 indicated that some of the unit processes at the GSD WRRF are nearing the end of their service life and would need rehabilitation and replacement soon. A Biosolids and Energy Strategic Plan (BESP) was developed in August 2019 by Hazen and Sawyer (Hazen), which evaluated biosolids unit processes in detail and summarized the recommended approach to upgrade existing facilities to mitigate regulatory uncertainties affecting biosolids disposition, diversify beneficial use outlets, and approach energy neutrality for the facility. The BESP summarized the capacity evaluation for the existing solids processes, including digesters, considering the current and anticipated future flows and loads and identified the need to build a new digester to maintain firm capacity. Firm capacity was defined as the ability to maintain full treatment capacity with the largest single process unit out of service.

To properly utilize digestion capacity and biogas production while leveraging existing assets, a wide variety of technologies were evaluated and screened. Alternatives were evaluated based on economic and non-economic factors. Each of the proposed alternatives needed to achieve the main objectives of securing digester capacity and utilizing biogas production. The BESP also included an assessment of the High Strength Waste (HSW) co-digestion and the feasibility and benefits of reaching energy neutrality. Although not part of the currently planned Project, HSW processing may be implemented in the future as funding becomes available.

The proposed Project is an initial step in GSD's long-term program for achieving energy neutrality by implementing technologies and strategies to utilize digester gas production and energy recovery. The BESP technology evaluation performed by Hazen for GSD identified a combined heat and power (CHP) system with an internal combustion engine as the most desirable biogas utilization technology and addition of a new anaerobic digester as the most feasible option to achieve firm digestion capacity.

The primary components of the currently proposed Project consist of:

- One new digester with a capacity of 550,000 gallons, which will replace existing Digester 1. The new digester will include the installation of auxiliary equipment, including digester mixing apparatus, digester cover, and digester heating elements (heat exchanger, piping, etc.). This new digester is designed to allow sufficient capacity for the plant if any of the existing digesters, including the largest digester (i.e., Digester 3), goes out of service.
- A CHP system featuring one new 160-kilowatt (kW) generator set that will be fueled by digester gas. Waste heat from the CHP engine will be used to heat the digesters. Additionally, the two existing digester gas booster blowers will be replaced with two new blowers to match the engine.
- A biogas pretreatment system to reduce hydrogen sulfide (H<sub>2</sub>S), siloxanes, and moisture in the digester gas used to fuel the CHP engine.

Modifications are not proposed to any of the existing combustion devices, including the existing boilers and flares; to the permitted digester gas throughput to the combustion units; or to the wastewater treatment capacity of the GSD WRRF at this time.

Although GSD is considering a long-term strategy that may involve other changes to the WRRF operations, those changes are not defined in sufficient detail for environmental assessment at this time. Therefore, the proposed Project consists of the above components only, and additional changes may require additional separate environmental review when those plans are defined.

## **1.2 Purpose of the Mitigated Negative Declaration**

This Mitigated Negative Declaration (MND) has been prepared in accordance with the provisions of the California Environmental Quality Act (CEQA), as set forth in the California Public Resources Code (PRC) Sections 21000 to 21174. In accordance with the California Code of Regulations (CCR) Title 14 Section 15002(a) CEQA Guidelines, the basic purposes of CEQA are to inform public agency decisionmakers and the general public of the significant environmental effects of a project, identify possible ways to minimize the significant effects through the use of mitigation measures or alternatives to the Project, and disclose to the public the reasons why a government agency approved the project if significant environmental effects are involved.

An MND for a project subject to CEQA is prepared when an environmental analysis of the project shows that there is no substantial evidence that the project may have a significant effect on the environment after mitigation [CEQA Guidelines Section 15070(b)]. As discussed in Chapter 3 – Environmental Checklist, the proposed Project is not expected to result in any significant adverse environmental impacts after mitigation; therefore, an MND is the appropriate CEQA document.

## **1.3 Public Review Process**

Publication of this MND marks the beginning of a 30-day public review and comment period. During this period, the MND will be available to local, State, and federal agencies and to interested organizations and individuals for review. Written comments concerning the environmental review contained in this MND during the 30-day public review period should be sent to:

Steve D. Wagner, PE  
General Manager  
Goleta Sanitary District

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
Goleta Sanitary District

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One William Moffett Place, Goleta, CA 93117  
Phone: (805) 967-4519: Fax: (805) 964-3583  
[swagner@goletasanitary.org](mailto:swagner@goletasanitary.org)

Comments are requested to be provided no later than May 18, 2022.

Following the conclusion of the public review period, GSD will consider the adoption of the MND for the Project at a regularly scheduled GSD board meeting. GSD shall consider the MND together with any comments received during the public review process. Upon adoption of the MND, GSD may proceed with Project approval actions.

## **2.0 PROJECT DESCRIPTION**

### **2.1 Project Objectives**

The objectives of the proposed Project are to design the proposed new digester and CHP system and auxiliary units, including digester cover, mixing, heating, and biogas treatment to restore firm capacity for future flows and loads and provide the ability to beneficially use biogas. The Project also addresses electrical and instrumentation and control (I&C) improvements. The Preliminary Design Conditions were identified and reported in GSD's BESP – Phase 1 Preliminary Design Report (PDR), which was prepared by Hazen and provided to GSD on September 23, 2020.

This MND has been prepared based on the PDR (Hazen 2020), the 30% design (Hazen 2021), and the BESP (Hazen 2019). Implementation of the recommended Project would result in replacement of Digester 1 with a new digester, installation of a CHP system, and beneficial use of biogas with no increase in influent wastewater capacity.

### **2.2 Project Location**

The Goleta WRRF is located at One William Moffett Place, in an unincorporated coastal area of Santa Barbara County, California. The plant is located approximately 10 miles west of the City of Santa Barbara, near the Pacific Coast, as shown in Figure 2-1. Treated wastewater is discharged through an ocean outfall, located south of the WRRF, into the Pacific Ocean at a location more than 1 mile offshore of Goleta Beach Park.

### **2.3 Existing Facility Components**

The existing solids processing flow diagram is shown in Figure 2-2. Currently, GSD's WRRF has the following solids and gas handling processes for treatment of the solids to achieve Class B biosolids:

- Waste activated sludge (WAS) generated from secondary treatment flows through two screw thickeners and is thickened up to 6% solids;
- Thickened WAS (TWAS) is combined with Primary Sludge (PS) coming from primary clarifiers prior to the digestion process;
- Combined PS and TWAS solids are stabilized in three mesophilic anaerobic digesters, operated in parallel;
- Digested biosolids are dewatered by two screw presses prior to beneficial use as a Class B product;
- A small portion of the dewatered biosolids goes into sludge drying beds for further stabilization to become a Class A product; and
- Biogas produced in the digesters is burned in boilers to provide hot water for heating the digesters and to supply other heating needs at the WRRF. Biogas that is not required for heating is flared through the waste gas flare.

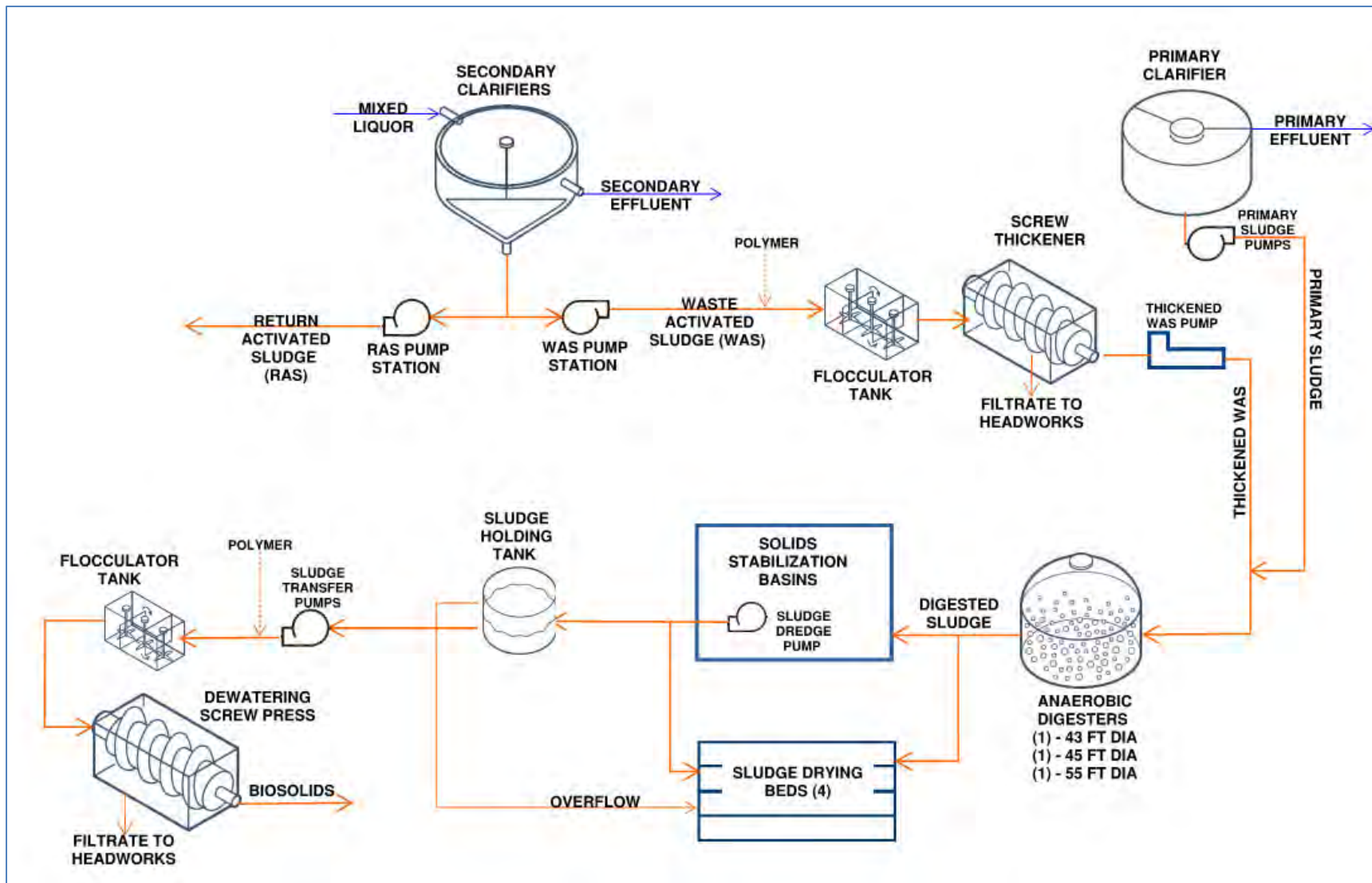


Figure 2-1: Regional Location of the Site



Project Vicinity  
Goleta Sanitary District

Figure 2-2: Existing WRRF Processing Flow Diagram



## 2.4 Project Components

General areas where Project components are proposed to be located are identified in the PDR and shown in the conceptual layout of the proposed Project, provided as Figure 2-3. The Project components will be located entirely within the existing facility footprint, and no additional land will be needed to accommodate the new digester and CHP system at the plant site.

More detail about each of the Project components is provided below.

### 2.4.1 New Digester

There are currently three mesophilic anaerobic digesters (MADs) at the WRRF: Digester 1, Digester 2, and Digester 3. The new digester (Digester 4) will replace Digester 1 to restore firm digester capacity for current and future conditions. The final disposition of Digester 1 has yet to be determined; however, Digester 1 will be taken out of service as a digester after the new Digester 4 is operational. Once decommissioned as a digester, it may be repurposed in the future. The minimum volume required for Digester 4 was determined in the PDR. Considering the current configuration of existing digesters and ease of construction and operations, Digester 4 will have the same 0.55-million-gallon capacity as Digester 3 but will have slightly greater depth and a smaller inside diameter (50 vs. 55 feet) and outside dimensions due to space constraints. Digester 4 will be located on the north side of Digester 3 as shown in Figure 2-3.

#### 2.4.1.1 Digester Mixing

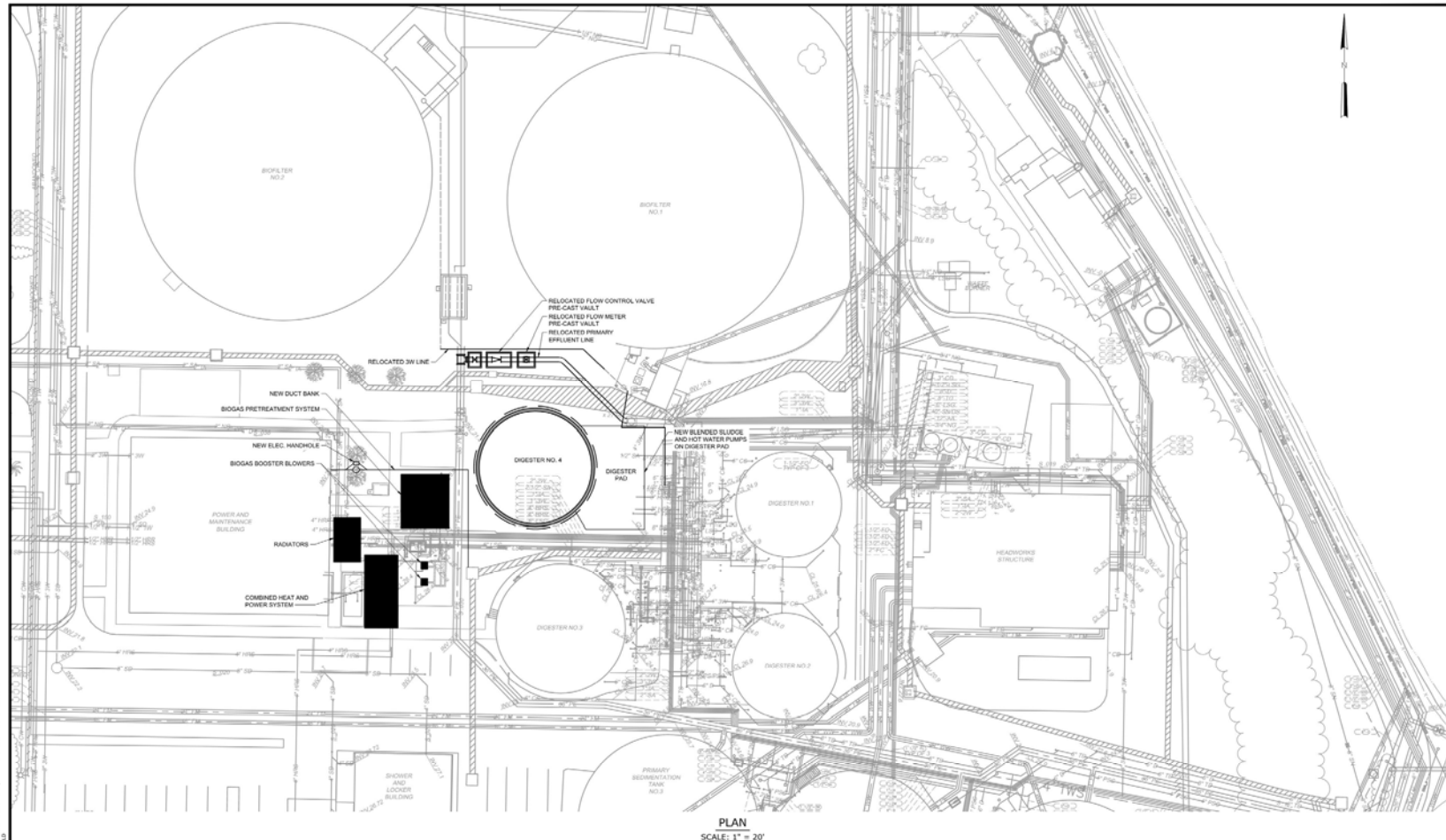
Complete mixing of the anaerobic digesters is critical for uniform stabilization of the solids. Adequate mixing energy is required to maintain solids in suspension while preventing formation of stagnant areas. Management of foam and scum formation is another consideration with the implementation of anaerobic digester mixing systems. Various alternatives (pumped mixing, draft tube mixing, linear motion mixing, and submersible mixing) were evaluated for implementation at the WRRF. Submersible mixing was selected for implementation. The submersible mixers will be equipped with a variable speed permanent magnet synchronous motor directly driving integrated three-blade propellers. The mixers will be installed on vertical shafts inside the tank so they can operate at different heights. The vertical shafts will be mounted to pedestals on the digester floor. Service boxes for the submersible mixers will be installed on the digester cover. The cover will be designed to accommodate the weight of the submersible mixer equipment.

#### 2.4.1.2 Digester Cover

Digester covers maintain anaerobic conditions by sealing digesters from atmospheric air intrusion and providing containment and storage of digester gas produced during the anaerobic process. The contained digester gas has value for fueling the hot water boilers for process and building heating. This Project will also add a CHP system to utilize the digester gas to reach GSD's energy neutrality goals. Therefore, containment and storage of digester gas has significant operational cost savings and revenue potential for GSD, which should be maximized (see Section 2.4.2).

Several digester cover alternatives (floating cover, fixed cover, dual membrane covers) were evaluated for implementation at the WRRF. Fixed non-submerged concrete covers were selected for installation.

Figure 2-3: Proposed Project Phase 1 Conceptual Layout



PLAN  
 SCALE: 1" = 20'

PROJECT ENGINEER: R. MEILO DESIGNED BY: S. TAKADA DRAWN BY: M. SEEBOLD CHECKED BY: G. CLIMMINGS		60% SUBMITTAL DRAWING DO NOT USE FOR CONSTRUCTION		HAZEN AND SAWYER 11260 EL CAMINO REAL, SUITE 102 SAN DIEGO, CALIFORNIA 92130	GOLETA SANITARY DISTRICT SANTA BARBARA COUNTY, CALIFORNIA		DATE: SEPTEMBER 2021
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO FULL SCALE.		CONCEPTUAL DIGESTER AREA			BIOSOLIDS AND ENERGY PHASE 1		HAZEN NO.: 20063-014 CONTRACT NO.: 1 DRAWING NUMBER: 5

The fixed non-submerged concrete covers allow operating level variations required for the dewatering operation. These covers will maintain the digester pressures and seal the anaerobic digesters by connecting to the digester walls.

#### *2.4.1.3 Digester Heating System*

The new anaerobic digester will require a digester heating system that will maintain the desired temperature in the digester for proper operation of the biological process. When the CHP system is in place, the waste heat from the CHP unit will be utilized to provide heat to both the existing digesters and the new digester. When the CHP unit is not operating and when additional heat (beyond the amount provided by the CHP system) is required, the digester will be heated by the existing boilers. The WRRF is currently equipped with one natural gas boiler manufactured by Hurst and one biogas boiler manufactured by Rite to provide hot water for the digester and building heating. Each boiler has a heating output of approximately 2.0 million British thermal units (MMBtu) per hour. The existing boilers have sufficient capacity to provide heat to the existing and new digesters and the buildings.

The new digester will be heated via a tube-in-tube heat exchanger, which will be located adjacent to the digester. The heat exchanger contains concentric tubes within tubes for exchanging heat from hot water to the solids flowing in the inner tubes. New hot water and sludge recirculation pumps will be installed on a concrete pad east of the new digester, shown in Figure 2-3.

#### **2.4.2 Combined Heat and Power Unit**

There is currently no CHP system at the facility. Biogas from the three existing digesters is used in one of the two existing boilers to heat the digesters and buildings. The other boiler is fed with natural gas. Excess biogas is flared in an existing, fully enclosed waste gas burner rated for 180 standard cubic feet per minute (scfm) with a candlestick flare as emergency backup.

The proposed Phase 1 Improvement Project includes installing a 160-kW CHP system using a reciprocating internal combustion engine with heat recovery from both the engine jacket and exhaust gas to generate a combination of electric and thermal energy to offset purchased power and heat the digesters and buildings. The sizing of the CHP system is based around the current and future biogas production conditions, facility electric demand, air permitting emission control requirements, and Project economic viability. A natural gas/biogas blending system may be provided with the CHP engine so the minimum engine loading can still be achieved when biogas production is below the 75% system rating of the engine.

The CHP system will have the capacity to meet 66% of the maximum digester heating demands, with the remaining heating demand met by the existing boilers. A blending system will be provided to allow the boilers to automatically supplement the heat provided by the CHP system. When the CHP system is down for maintenance, the boilers have the capacity to provide 100% of the digester heating requirements.

The CHP system will be designed to meet the requirements of Code of Federal Regulations (CFR) Title 40, Part 60, Subpart JJJJ and Santa Barbara County Air Pollution Control District (SBCAPCD) Rule 333.

The CHP system will be provided inside a prefabricated, sound attenuated enclosure designed not to exceed 65 A-weighted decibels dBA within 33 feet from the enclosure exterior walls. The proposed location of the CHP unit enclosure, between the Power and Maintenance Building and the digesters, makes the best use of the site's footprint and minimizes the length of heat recovery and gas piping.

The CHP system will be connected to the facility main switchgear located inside the Power and Maintenance Building to offset the electric energy purchased from Southern California Edison (SCE). The electrical interconnection will comply with SCE Electric Rule 21, which requires electrical protective and disconnect devices to be included at the plant service entrance to protect against the CHP system supplying power to the grid (reverse power) and to safeguard against inadvertently energizing the SCE facilities while they are in a de-energized state (i.e., power outage). The design of the CHP system will include an SCE electric utility interconnection study to identify if any upgrades are required to install the CHP system. A net metering agreement with SCE may be considered to operate the CHP system at 100% load and produce enough power to meet or exceed the electric demand of the facility. Load sharing controls will be added so that the CHP system can operate in a base loaded mode when the facility is called to operate on the standby diesel generators during public safety curtailment periods. These controls will significantly reduce diesel usage by operating the CHP system in parallel with the existing diesel generators.

#### *2.4.2.1 Biogas Pretreatment System*

The CHP system will be furnished with biogas pretreatment to protect the CHP engine from H<sub>2</sub>S, siloxanes, and moisture. The biogas pretreatment system may include an iron sponge for treatment of H<sub>2</sub>S, a fixed bed activated carbon media system for treatment of siloxanes, and gas chilling and condensate traps for treatment of moisture and siloxanes. The biogas pretreatment system will be designed to meet the sulfur content limits of SBCAPCD Rule 311. All of the biogas used in the CHP system will be pretreated, and valving will be provided to either pretreat biogas to the CHP system or send biogas directly to the boilers. Biogas that is directed to the flare will not run through pretreatment.

The biogas pretreatment system can be located on the existing unused equipment pads, which were originally intended for a natural gas dilution system that was never installed. Additionally, the engine will be equipped with an oxidation catalyst to mitigate reactive organic compound (ROC) emissions.

A new code, American National Standards Institute (ANSI)/Canadian Standards Association (CSA) B149.6, prohibits the use of biogas as flare pilot fuel. The existing flare has already been modified to use natural gas for pilot fuel. Natural gas is a more reliable pilot fuel than untreated biogas.

#### *2.4.2.2 Biogas Booster Blowers*

Two larger biogas booster blowers will be needed to meet the pressure and flow required to send the biogas through the biogas pretreatment system and to the CHP unit and boilers. The two existing medium pressure sludge gas (MSG) blowers will be replaced with new uprated booster blowers, which will be installed in the existing location near the

Maintenance and Electrical Building. These blowers will be at most 5 horsepower (hp) and are electric.

### **2.4.3 Electrical Improvements**

A new section will be added to the facility's Main Switchgear to connect the new CHP cogeneration unit into the facility's electrical distribution system. The design of the CHP system will include an SCE electric utility interconnection study to identify if any upgrades are required to install the CHP system. At a minimum, a new multifunction protection relay will be added to the utility service entrance device to provide reverse power, over/under voltage, and over/under frequency protection.

Based on the proposed location of the new 50-foot-diameter Digester 4, the existing Duct Bank 3 will need to be demolished and re-routed. A new duct bank will be installed from the east exterior wall of the Power & Maintenance Building to intercept the existing manhole MH-3 and handhole HH-3. New feeder conductors will be installed in the new duct bank to allow the existing digester loads to be cut over one at a time to minimize down time. The new duct bank will also include conduits for the new CHP system, MSG Booster Blower 3, Gas Pretreatment System, and Digester 4. Existing spares and spaces within MCC-B will be utilized to supply power to the new loads. The gas pretreatment system will be supplied by the spares from the existing MCC-E from the Headworks Building as an alternate.

The existing Power and Maintenance Programmable Logic Controller (PMPLC) Panel is intended to handle new input/output associated with the new process loads and instrumentation. New Supervisory Control and Data Acquisition (SCADA) screens will be provided to monitor the new processes.

### **2.4.4 Civil Works**

Construction will occur on the existing treatment plant site. There will be new pavement around Digester 4 and the CHP, but in general, the existing pavement will either be maintained in place or removed as required for construction. Grading will be limited to what is required around new facilities and will match existing drainage patterns.

New site utilities will be routed to Digester 4, the CHP system, and other new facilities, and existing utilities will be removed and replaced or relocated. The following existing utilities will be removed and replaced or relocated:

- 24-inch diameter Primary Effluent pipeline, including gate valve, flow control valve, magnetic flow meter, and flow indicator transmitter. The gate valve, flow control valve, magnetic flow meter, and flow indicator transmitter will be relocated to the north to make room for Digester 4. The existing pipeline and vaults will be demolished and replaced.
- Duct Bank to the west of Digester 4 – this duct bank will be removed and relocated to the west.
- 1-inch 3W east of Digester 4 – this will be demolished and replaced to the east.
- 3-inch 3W north of Digester 4 – this will be demolished and replaced to the north.

The following utilities south of Digester 4 will be protected in place during construction:

- 2-inch Non-Potable City Water (2W);
- 2.5-inch Service Air (SA);
- 1-inch Instrument Air (IA);
- 1-inch Plant Process Effluent (3W);
- 4-inch Hot Reservoir Supply (HRS);
- 4-inch Hot Reservoir Return (HRR); and
- 6-inch Low Pressure Sludge Gas (LSG).

There will be new connections to Digester 4 from the east. The pipelines in the CHP area will generally remain in place, with new connections to the CHP unit.

## 2.5 Project Construction

### 2.5.1 Phasing

The construction of Digester 4 and the CHP system will require shutdowns of various facilities within the WRRF. For this reason, construction sequencing and coordination with Operations staff are critical to maintaining plant operations. Prior to commencement of construction, GSD staff will take Digester 1 and Biofilter 1 out of service. Reconstruction of the primary effluent line serving Biofilter 1 will be carried out prior to construction of Digester 4. New aboveground conduits and an underground duct bank from the Power & Maintenance Building to the existing MH-3/HH-3 will be constructed prior to demolition of the existing duct bank to allow existing digester loads to be cut over one at a time. After the cutover process is completed, the existing Duct Bank 3 can be demolished to free up space for the new Digester 4 to be constructed. Construction of the CHP system will initiate as the construction of Digester 4 is finishing. All units should be constructed, functionally tested, commissioned, and placed into operation approximately 18 months after construction begins. The sequencing of the Project components during the construction years (2022-2023) is summarized below:

- Construct relocated segment of Duct Bank 3;
- Construct new aboveground conduits from MCC-B to the east exterior wall of the Power & Maintenance Building;
- Cut over existing loads at Digesters 2 and 3;
- Remove existing Digester 1 conductors;
- Demolish existing Duct Bank 3;
- Install isolation on 24-inch Primary Effluent line and relocate line, meter, and valve;
- Excavate and clear the area for Digester 4 construction;
- Install Digester 4 and CHP system;
- Install new aboveground/underground conduit and wires for new electrical loads; and



- Start up Digester 4 and CHP system, and steady-state operations.

### 2.5.2 Structural and Geotechnical Design

The proposed Project includes construction of new structures and modification of existing structures. The structures to be modified were constructed in the 1960s. The new Digester 4 will be designed as a reinforced concrete tank in accordance with ACI 350 - Code Requirements for Environmental Engineering Concrete Structures. The concrete tank base type will be (Anchored Flexible Base) for service in geographic locations prone to high seismic accelerations. The tank will be comprised of a cast-in-place concrete wall system with conventional vertical and horizontal reinforcing steel and seismic base restraint cables to transfer loads from the wall to the foundation using an anchored flexible base connection.

The strength, serviceability, and quality standards shall not be less than stipulations required by the governing code. The governing code used for the proposed design is expected to be the 2019 California Building Code (CBC). Materials and construction shall be designed in accordance with the CBC, and other codes as presented within this report.

### 2.5.3 Site Work and Truck Load Estimates

The proposed Project includes addition of new facilities in the areas that are either paved or on land that has been previously disturbed. The estimated volume of excavated soil, soil reused for backfill, and soil imported for the proposed Project is shown in Table 2-1, and a summary of the number of trucks needed for transport of the soils is shown in Table 2-2. The estimated volume of excavated soil to be disposed or reused off-site is 2,500 cubic yards (CY). Total material hauling trips are estimated to be 417, including soil disposal and hauling of waste.

**Table 2-1: Excavation, Backfill (Reuse), and Import Amounts**

Area of Improvement	Excavation Amount (CY)	Backfill (Reuse) Amount (CY)	Import Amount (CY)
New Digester	3,500	1,300	500
CHP	400	100	200
Piping, misc.	550	550	–
<b>TOTAL</b>	<b>4,450</b>	<b>1,950</b>	<b>700</b>

**Table 2-2: Summary of Truck Generation**

Parameter	Number of Haul/Delivery Trucks	Volume per Truck
Concrete Trucks	70	10 CY
Trailer/Tractors delivering rebar	2	20,000 pounds
Trucks delivering soil	60	12 CY
Trucks transporting soil off-site	210	12 CY
Trucks/Trailers delivering miscellaneous equipment from pipe to pumps	75	20,000 pounds

The maximum number of trips in a day would be 6. The following describes the expected truck commuter route during construction:

- Exit CA-217 towards Airport/University of California, Santa Barbara (UCSB) from US-101;
- Continue west on CA-217 to Exit 1 Sandspit Road;
- Turn right onto Moffett Place; and
- Turn right into the GSD WRRF.

#### **2.5.4 Construction Equipment**

The specific type of equipment used during construction would be determined by the selected General Contractor. Table 2-3 lists the heavy equipment that might be used during construction. Construction, commissioning, and startup are anticipated to occur over a 12-month period in the following six phases:

- Construction Phase 1: Utility relocation;
- Construction Phase 2: Excavation for Digester 4;
- Construction Phase 3: Construction of the Digester 4 and CHP system;
- Construction Phase 4: Mechanical and electrical work;
- Construction Phase 5: Commissioning; and
- Construction Phase 6: Startup and preliminary operations.

**Table 2-3: Construction Equipment for the Proposed Project and Improvements**

<b>Equipment</b>	<b>Number</b>	<b>Details</b>	<b>Estimated Total Work Days of Use</b>	<b>Construction Phase(s)</b>
Excavator	1	15 ton	40	Phase 2
Large Crane	1	100 ton	85	Phase 2, 3, 4
Small Crane	1	20 ton	60	Phase 3, 4
Loader	1	3 CY	40	Phase 1
Dump Truck	2	12 CY	40	Phase 1, 2
Bobcat	1	3 ton	400	Phase 1, 3
Dozer	1	140 hp	40	Phase 1
Pick-Up Truck	3	4-wheel drive	400	Phase 1, 2, 3, 4, 5, 6

#### **2.5.5 Staging Areas, Parking, and Storage**

An on-site construction trailer will be needed for the duration of the Project. This trailer will provide office space for the contractor’s management personnel. Parking will be provided at the contractor trailer for management staff. Materials will also be stored off-site in a separate laydown area. This laydown area may include yard space and rented warehouse space for tools, materials, and equipment. It is also expected that excavated materials will be transported off-site.

Peak construction workers would be 24 on-site, with an average of 12 workers on any given day. They would come primarily from the Santa Barbara/Ventura area.

### **2.5.6 Construction Best Management Practices**

GSD will incorporate the specific design recommendations that are contained in Appendix A of the Geotechnical Evaluation prepared by Ninyo & Moore for the proposed Project, dated January 2021 (Ninyo and Moore 2021) (see Appendix A). GSD's existing Storm Water Pollution Prevention Plan (SWPPP) will be updated to include an erosion and sediment control plan for construction of the proposed Project, which will include implementation of the following Best Management Practices (BMPs) designed to minimize erosion:

- Methods such as geotextile fabrics, erosion control blankets, retention basins, drainage diversion structures, siltation basins, and/or spot grading will be used to reduce erosion and siltation into adjacent water bodies or storm drains during grading and construction activities.
- Entrances/exits to the construction site will be stabilized (e.g., using rumble plates, gravel beds, or other best available technology) to reduce transport of sediment off-site. Any sediment or other materials tracked off-site will be removed the same day as they are deposited using dry cleaning methods.
- Storm drain inlets will be protected from sediment-laden waters by the use of inlet protection devices such as gravel bag barriers, filter fabric fences, block and gravel filters, and excavated inlet sediment traps.
- Construction staging and storage areas will be shown on the grading plans. These areas will be fenced, BMPs such as hay bales will be installed around the perimeter to prevent runoff from leaving the staging area, and entrances/exits will be stabilized.
- Exposed graded surfaces will be reseeded with ground cover vegetation to minimize erosion within 4 weeks of grading completion. This requirement will be noted on the building and grading plans.
- Erosion and sediment control measures will be in place throughout grading and development of the site until all disturbed areas are permanently stabilized.
- Construction materials and waste, such as paint, mortar, concrete slurry, fuels, etc., will be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. Bulk storage locations for construction materials and any measures proposed to contain the materials will be shown on the building and grading plans.
- A copy of the updated SWPPP will be maintained on the Project site during grading and construction activities.

GSD will additionally implement BMPs to reduce fugitive dust and to follow the Santa Barbara County Grading Code Section 14.23, Dust Control by:

- Wetting, protecting, or containing all graded surfaces and materials, whether filled, excavated, transported, or stockpiled, in such a manner as to prevent the generation of dust.

## **2.6 Required Permits and Approvals**

### ***2.6.1 Regional and Local Permits and Approvals***

The proposed Project is located within the permitting jurisdiction of the County of Santa Barbara, with the certified Local Coastal Program as the standard of review. Based on consultation with County planning staff, the Project will require a Conditional Use Permit (CUP), Development Plan Review (DVP), and Coastal Development Permit (CDP). There may also be ministerial local permits required, such as grading, stockpiling, building, electric, etc.

Additionally, this Project will require an SBCAPCD authority to construct (ATC) and, once operational, a permit to operate (PTO) for the new digester and the CHP engine, including associated equipment and abatement devices. An application for an ATC was submitted to the SBCAPCD for the proposed Project on November 16, 2021.

### ***2.6.2 California Permits and Approvals***

The Project is also located within the California Coastal Commission (CCC) appeals jurisdiction, meaning that any local permit decision may be appealed to CCC by a member of the public or two commissioners.

### ***2.6.3 Federal Permits and Approvals***

Due to the location of the GSD WRRF adjacent to the Santa Barbara Municipal Airport, the Project will also require a Notice of Proposed Construction (Form 7460-1) to the Federal Aviation Administration (FAA).

### 3.0 ENVIRONMENTAL CHECKLIST

The environmental checklist provides a standard evaluation tool to identify a project’s adverse environmental impacts. This checklist identifies and evaluates potential adverse environmental impacts that may be created by the proposed Project. No topical areas on the CEQA environmental checklist were found to have mitigated impacts exceeding applicable thresholds of significance.

#### 3.1 General Information

<b>Project Title:</b>	Digester and Combined Heat and Power Upgrades
<b>Lead Agency:</b>	Goleta Sanitary District One William Moffett Place Goleta, CA 93117
<b>Contact Person and Phone Number:</b>	Steve D. Wagner, PE General Manager / District Engineer Office: (805)967-4519
<b>Project Location:</b>	Goleta Sanitary District One William Moffett Place Goleta, CA 93117
<b>Applicant:</b>	Goleta Sanitary District One William Moffett Place Goleta, CA 93117
<b>APN</b>	071-200-024, 071-200-019, 071-200-003
<b>Community Plan Land Use Designation:</b>	UT – Public Utility
<b>Zoning Designation:</b>	PU – Public Utilities
<b>Description of Project:</b>	See Chapter 2
<b>Surrounding Land Uses and Setting:</b>	To the north and west is the Santa Barbara Municipal Airport. To the south is the Goleta Pier and Goleta Beach Park Recreational Area. To the east is additional public utility area. To the northeast is mixed land uses including single family, multiple family, institutional, industrial, vacant, open space, and mobile home park land uses.

### 3.2 Environmental Factors Potentially Affected

The following environmental impact areas have been assessed to determine their potential to be adversely affected by the proposed Project. As indicated by the checklist on the following pages, environmental topics marked with a “✓” may be adversely affected by the proposed Project. An explanation relative to the determination of impacts can be found following the checklist for each area.

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Aesthetics                           | <input type="checkbox"/> Agriculture/Forestry Resources | <input checked="" type="checkbox"/> Air Quality               |
| <input checked="" type="checkbox"/> Biological Resources      | <input checked="" type="checkbox"/> Cultural Resources  | <input type="checkbox"/> Energy                               |
| <input type="checkbox"/> Geology/Soils                        | <input type="checkbox"/> Greenhouse Gas Emissions       | <input type="checkbox"/> Hazards and Hazardous Materials      |
| <input type="checkbox"/> Hydrology/Water Quality              | <input type="checkbox"/> Land Use/Planning              | <input type="checkbox"/> Mineral Resources                    |
| <input type="checkbox"/> Noise                                | <input type="checkbox"/> Population/Housing             | <input type="checkbox"/> Public Services                      |
| <input type="checkbox"/> Recreation                           | <input type="checkbox"/> Transportation                 | <input checked="" type="checkbox"/> Tribal Cultural Resources |
| <input checked="" type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Wildfire                       | <input type="checkbox"/> Mandatory Findings of Significance   |

### 3.3 Determination

On the basis of this initial evaluation:

- I find the Proposed Project COULD NOT have a significant effect on the environment, and that a NEGATIVE DECLARATION has been prepared.
- I find that although the Proposed Project could have a significant effect on the environment, there will not be significant effects in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION has been prepared.
- I find that the Proposed Project MAY have a significant effect(s) on the environment, and an ENVIRONMENTAL IMPACT REPORT (EIR) is required.
- I find that the Proposed Project MAY have a “potentially significant impact” on the environment, but at least one effect: 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards; and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects: 1) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards; and 2) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.

Signature: Steve Wagner  
Steve D. Wagner  
General Manager  
Goleta Sanitary District

Date: March 28, 2022

### 3.4 Environmental Checklist and Discussion

This section provides a discussion of the potential environmental impacts of the proposed Project. The evaluation of environmental impacts follows the questions provided in the Appendix G Checklist.

For each question listed in the Appendix G checklist, a determination of the level of significance of the impact is provided. Impacts are assigned to one of the following categories:

- A designation of no impact is given when no adverse changes in the environment are expected;
- A less than significant impact would cause no substantial adverse change in the environment;
- A less than significant impact with mitigation incorporated would have a substantial adverse impact on the environment but could be reduced to a less than significant level with incorporation of mitigation measure(s); and
- A potentially significant impact would cause a substantial adverse effect on the environment and no feasible mitigation measures would be available to reduce the impact to a less than significant level.

A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency relied upon for the analysis. A No Impact answer is adequately supported if the referenced information sources show that the impact simply does not apply to the project (e.g., the project falls outside a fault rupture zone). A No Impact answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

Once it is determined that a particular physical impact may occur, then the checklist answers must indicate if the impact is potentially significant, less than significant with mitigation, or less than significant.

“Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more Potentially Significant Impact entries when the determination is made, an Environmental Impact Report (EIR) is required.

“Less Than Significant with Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from Potentially Significant Impact to a Less Than Significant Impact. Mitigation measures are identified and explain how they reduce the effect to a less than significant level.

Explanation of each issue identifies:

- a) The significance criteria or threshold, if any, used to evaluate each question; and
- b) The mitigation measure identified, if any, to reduce the impact to less than significant.



**I. Aesthetics**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>I. Aesthetics.</b> Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Existing Conditions:**

The site is currently occupied by the existing GSD WRRF. It contains multiple buildings, paved areas, manicured lawn areas, retention basins, and wastewater treatment equipment.

**Environmental Determination:**

**a) Have a substantial adverse effect on a scenic vista?**

Impact: No Impact

The proposed Project would not have an adverse effect on scenic vistas. The proposed Project site is currently developed with the existing GSD WRRF and includes facilities that are similar in height, scale, and massing to those currently on the existing GSD WRRF. The proposed Project does not contain any buildings or structures that are significantly higher than the existing buildings at the site. The proposed digester dome is 32 feet, and the existing digester domes are also approximately 32 feet high. The CHP engine stack is approximately 20 feet tall. The opportunities for views from vantage points adjacent to the site would remain similar to existing conditions. There would be no impact on scenic vistas generated by the proposed Project.

***b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?***

Impact: No Impact

The proposed Project would not have a substantial adverse effect on scenic resources, including those located within a designated scenic highway. The site is bounded by Moffett Place to the west and north and Highway 217 to the east. There are no designated State Scenic Highways, County Scenic Highways, National Scenic Byways, Historic Parkways, or eligible State Scenic Highways near or within view of the proposed Project site. The nearest scenic highway is U.S. Highway 101 north of the City of Goleta, more than 5 miles away. The nearest eligible, but not designated, highway is U.S. Highway 101, more than 1 mile due north of the proposed Project. The proposed Project site includes pavement, lawn areas, and buildings, and no rock outcroppings, trees, historic buildings, or other physical features that would constitute important scenic resources. Therefore, the proposed Project would not result in impacts to scenic resources located within a designated scenic highway.

***c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?***

Impact: Less Than Significant Impact

The proposed Project would not substantially degrade the existing visual character or the visual quality of the Project site and its surroundings. The Project site is currently developed and within the existing GSD facility. The proposed Project includes facilities that are similar in height and scale to those currently on the existing site. The proposed Project components are not expected to be visible from Goleta Beach Park, located approximately 0.3 miles to the south, since the view is blocked by other WRRF existing components and Highway 217. Therefore, the proposed Project is not expected to substantially alter the existing visual character of the site or its surroundings.

***d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?***

Impact: Less Than Significant Impact

The proposed Project would not adversely affect day or nighttime views in the area through the addition of new sources of light or glare. The closest residential development to the GSD property consists of residences located 500 feet to the east of the facility. Potential new sources of light as part of the proposed Project would be exterior lights and security lighting, which would create a minimal amount of light or glare above the existing conditions and be located far from any receptor that could be sensitive to additional light.

***Mitigation Measures:***

No mitigation is required.

**II. Agriculture and Forestry Resources**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<p><b>II. Agriculture and Forestry Resources.</b> 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. Would the project:</p>				
<p>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 nonagricultural use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>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))?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>d) Result in the loss of forest land or conversion of forest land to non-forest use?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<p>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?</p>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

***Existing Conditions:***

The WRRF site does not contain any agricultural or forestry resources.

***Environmental Determination:***

- 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?***

Impact: No Impact

The proposed Project would not convert farmland to non-agricultural uses. The Project site is in a coastal area surrounded by the Santa Barbara Municipal Airport, undeveloped coastal habitat, residences, and businesses, and is currently developed with asphalt, concrete walkways, concrete equipment, and office and maintenance buildings. The Project site was not mapped or designated as farmland by the Farmland Mapping and Monitoring Program (California Department of Conservation 2018). The Santa Barbara County Important Farmland Map 2018 designated the Project site as urban and built-up land (California Department of Conservation 2018). Therefore, no impact to Prime Farmland, Unique Farmland, or Farmland of Statewide Importance would occur.

- b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?***

Impact: No Impact

The proposed Project would not conflict with agricultural zoning or a Williamson Act contract. The Project site is in mixed undeveloped coastal habitat area with scattered development and the Santa Barbara Airport and is presently zoned Public Utility (Santa Barbara County Planning & Development 2018). Further, the County of Santa Barbara Williamson Act Land Map 2015 does not designate the area as an Agricultural Preserve (Agricultural Preserve of Santa Barbara County, 2015).

- c) Conflict with existing zoning for, or cause rezoning of, forestland (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))?***

Impact: No Impact

The proposed Project is not located within forest land, timberland, or timberland zoned Timberland Production. As a result, the proposed Project would not conflict with, or cause any alteration to, existing zoning for forest land, timberland, or timberland zoned Timberland Production. This is apparent in “California’s Forest Resources: Forest Inventory and Analysis, 2001–2010,” where the site and the surrounding area are not forested or a forest plot.

- d) Result in the loss of forest land or conversion of forest land to non-forest use?***

Impact: No Impact

The proposed Project is not within forest land, will not result in the loss of forest land, and will not convert forest land to non-forest use. “California’s Forest Resources: Forest

Inventory and Analysis, 2001–2010” shows that the site and surrounding area are not forested or a forest plot.

*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?*

Impact: No Impact

Implementation of the proposed Project would not result in changes to the environment that could convert farmland to non-agricultural uses. The Project site is currently developed with asphalt, concrete walkways, concrete equipment, and office and maintenance buildings. The proposed Project would include improvements within an existing facility that is currently covered with asphalt, concrete, or planted lawn. Therefore, the proposed Project would not result in the conversion of farmland to non-agricultural uses.

***Mitigation Measures:***

No mitigation is required.

**III. Air Quality**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>III. Air Quality.</b> 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. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) 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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Existing Conditions:**

Currently, GSD operates a WRRF that emits criteria pollutants from the combustion of digester gas in boilers or flares and the combustion of diesel in emergency generators. Additionally, there are some health risks associated toxic air contaminant (TAC) emissions from wastewater treatment operations. The proposed Project will include new sources of emissions, e.g., the CHP engine, but is not anticipated to significantly increase the emissions of air pollutants or TACs from the existing sources at the facility.

**Regional Climate**

The following discussion is taken from the SBCAPCD’s 2007 Clean Air Plan (SBCAPCD 2007a).

Santa Barbara County’s air quality is influenced by both local topography and meteorological conditions. Surface and upper-level wind flow varies both seasonally and geographically in the County, and inversion conditions common to the area can affect the vertical mixing and dispersion of pollutants. The prevailing wind flow patterns in the County are not necessarily those that cause high ozone values. In fact, high ozone values are often associated with atypical wind flow patterns. Meteorological and topographical influences that are important to air quality in Santa Barbara County are as follows:

- Semi-permanent high pressure that lies off the Pacific Coast leads to limited rainfall (around 16 inches per year), with warm, dry summers and relatively damp winters. Maximum summer temperatures average about 70 degrees Fahrenheit (°F) near the coast and in the high 80s to 90s inland. During winter, average minimum temperatures range from the 40s along the coast to the 30s inland. Additionally, cool, humid, marine air causes frequent fog and low clouds along the coast, generally during the night and morning hours in the late spring and early summer. The fog and low clouds can persist for several days until broken up by a change in the weather pattern.
- In the northern portion of the County (north of the ridgeline of the Santa Ynez Mountains), the sea breeze (from sea to land) is typically northwesterly throughout the year, while the prevailing sea breeze in the southern portion of the County is from the southwest. During summer, these winds are stronger and persist later into the night. At night, the sea breeze weakens and is replaced by light land breezes (from land to sea). The alternation of the land-sea breeze cycle can sometimes produce a “sloshing” effect, where pollutants are swept offshore at night and subsequently carried back onshore during the day. This effect is exacerbated during periods when wind speeds are low.
- The terrain around Point Conception, combined with the change in orientation of the coastline from north-south to east-west, can cause counterclockwise circulation (eddies) to form east of the Point. These eddies fluctuate temporally and spatially, often leading to highly variable winds along the southern coastal strip. Point Conception also marks the change in the prevailing surface winds from northwesterly to southwesterly.
- Santa Ana winds are northeasterly winds that occur primarily during fall and winter, but occasionally in spring. These are warm, dry winds that blow from the high inland desert and descend down the slopes of a mountain range. Wind speeds associated with Santa Ana winds are generally 15 to 20 miles per hour (mph), though they can sometimes reach speeds in excess of 60 mph. During Santa Ana conditions, pollutants emitted in Santa Barbara County, Ventura County, and the South Coast Air Basin (the Los Angeles region) are moved out to sea. These pollutants can then be moved back onshore into Santa Barbara County in what is called a “post-Santa Ana condition.” The effects of the post-Santa Ana condition can be experienced throughout the County. Not all post-Santa Ana conditions, however, lead to high pollutant concentrations in Santa Barbara County.
- Upper-level winds (measured at Vandenberg Air Force Base once each morning and afternoon) are generally from the north or northwest throughout the year, but southerly and easterly winds do occur in winter, especially during the morning. Upper-level winds from the south and east are infrequent during the summer. When they do occur during summer, they are usually associated with periods of high ozone levels. Surface and upper-level winds can move pollutants that originate in other areas into the County.
- Surface temperature inversions (0-500 feet) are most frequent during the winter, and subsidence inversions (1,000-2,000 feet) are most frequent during the summer.

Inversions are an increase in temperature with elevation and are directly related to atmospheric stability. Inversions act as a cap to the pollutants that are emitted below or within them, and ozone concentrations are often higher directly below the base of an elevated inversion than they are at the Earth's surface. For this reason, elevated monitoring sites will occasionally record higher ozone concentrations than sites at lower elevations. Generally, the lower the inversion base height and the greater the rate of temperature increase from the base to the top, the more pronounced effect the inversion will have on inhibiting vertical dispersion. The subsidence inversion is very common during the summer along the California coast and is one of the principal causes of air stagnation.

- Poor air quality is usually associated with “air stagnation” (high stability/restricted air movement). Therefore, it is reasonable to expect a higher frequency of pollution events in the southern portion of the county where light winds are frequently observed, as opposed to the northern part of the county where the prevailing winds are usually strong and persistent.

### ***Regulatory Setting:***

#### *Federal and State Clean Air Acts*

The Federal Clean Air Act (CAA) was passed in 1963 by the U.S. Congress and has been amended several times. The federal CAA of 1970 forms the basis for the national air pollution control effort. Basic elements of the CAA include provisions for attainment and maintenance of the National Ambient Air Quality Standards (NAAQS) for major air pollutants (Title I), motor vehicle emissions and fuel standards (Title II), hazardous air pollutant standards (Title III), and stratospheric ozone protection (Title VI). The 1970 CAA Amendments strengthened previous legislation and laid the foundation for the regulatory scheme of the 1970s and 1980s. In 1977, Congress again added several provisions, including nonattainment requirements for areas not meeting NAAQS and the Prevention of Significant Deterioration (PSD) Program, which regulates stationary sources. The amendments identified specific emission reduction goals, required a demonstration of both reasonable further progress and attainment by specified dates, and incorporated more stringent sanctions for failure to attain the NAAQS or to meet interim attainment milestones. The 1990 Amendments represent the latest in a series of federal efforts to regulate the protection of air quality in the U.S. The current NAAQS, along with the SBCAPCD's attainment status for the NAAQS, are listed in Table 3-1. As indicated, the averaging times for the various air quality standards (the duration over which they are measured) range from 1 hour to an annual basis. The standards are read as a concentration, in parts per million (ppm), or as a weighted mass of material per a volume of air, in milligrams or micrograms of pollutant per cubic meter of air ( $\text{mg}/\text{m}^3$  or  $\mu\text{g}/\text{m}^3$ , respectively).

In 1988, the State Legislature passed the California Clean Air Act (CCAA), which established California's air quality goals, planning mechanisms, regulatory strategies, and standards of progress for the first time. The CCAA provides the State with a comprehensive framework for air quality planning regulation. The CCAA requires attainment of California Ambient Air Quality Standards (CAAQS) by the earliest practicable date. Attainment Plans are required for air basins in violation of the State ozone ( $\text{O}_3$ ), carbon monoxide (CO),



sulfur dioxide (SO<sub>2</sub>), or nitrogen dioxide (NO<sub>2</sub>) standards. Preparation of and adherence to Attainment Plans are the responsibility of the local air pollution control districts or air quality management districts. The CAAQS are more stringent than the corresponding federal standards. The CAAQS, along with the SBCAPCD’s attainment status for the CAAQS, are also summarized in Table 3-1, which comes from the SBCAPCD’s Webpage “Meeting Air Quality Standards”.

**Table 3-1: NAAQS, CAAQS, and SBCAPCD Attainment Status**

Pollutant	Averaging Time	California Standards		National Standards	
		Pollutant Concentration	Attainment Designation	Pollutant Concentration	Attainment Designation
Ozone	8 hour	0.070 ppm	N	0.070 ppm	A/U
	1 hour	0.09 ppm		<i>Revoked</i>	—
Nitrogen Dioxide	annual arithmetic mean	0.030 ppm (56 µg/m <sup>3</sup> )	A	0.053 ppm (100 µg/m <sup>3</sup> )	A/U
	1 hour	0.18 ppm (338 µg/m <sup>3</sup> )		0.10 ppm (188 µg/m <sup>3</sup> )	A/U
Sulfur Dioxide	24 hour	0.04 ppm (105 µg/m <sup>3</sup> )	A	<i>Revoked</i>	—
	1 hour	0.25 ppm (655 µg/m <sup>3</sup> )		0.075 ppm (196 µg/m <sup>3</sup> )	A/U
Carbon Monoxide	8 hour	9.0 ppm (10 mg/m <sup>3</sup> )	A	9 ppm (10 mg/m <sup>3</sup> )	A/U
	1 hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 mg/m <sup>3</sup> )	
Respirable Particulate Matter	annual arithmetic mean	20 µg/m <sup>3</sup>	N	<i>Revoked</i>	—
	24 hour	50 µg/m <sup>3</sup>		150 µg/m <sup>3</sup>	U
Fine Particulate Matter	annual arithmetic mean	12 µg/m <sup>3</sup>	U	12.0 µg/m <sup>3</sup>	A/U
	24-hour	—	—	35 µg/m <sup>3</sup>	A/U
Lead	Rolling 3-month average	—	—	0.15 µg/m <sup>3</sup>	A/U
	30-day average	1.5 µg/m <sup>3</sup>	A	—	—
Sulfates	24-hour	25 µg/m <sup>3</sup>	A	No National Standards	
Hydrogen Sulfide	1 hour	0.03 ppm (42 µg/m <sup>3</sup> )	A		

<b>Vinyl Chloride (chloroethene)</b>	24 hour	0.01 ppm (26 $\mu\text{g}/\text{m}^3$ )	—	
<b>Visibility Reducing Particles</b>	8 hour (1000 to 1800 PST)	See Note #1	U	

Legend:

A = Attainment;  $\text{mg}/\text{m}^3$  = milligrams per cubic meter;  
 N = Nonattainment;  $\mu\text{g}/\text{m}^3$  = micrograms per cubic meter;  
 U = Unclassified; ppm = parts per million;  
 A/U = Attainment/Unclassifiable; ppb = parts per billion;  
 — = No Standard.

Note #1: Statewide Visibility Reducing Particles Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70%. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.

Note #2: Recent EPA federal registers have established that the “Attainment/Unclassifiable” designation is clearer than “Unclassifiable/Attainment”, and that re-ordering the terms has no regulatory consequence.

*General Air Conformity*

Section 176(c)(1) of the CAA requires federal agencies to ensure that their actions conform to applicable implementation plans for achieving and maintaining the NAAQS for criteria pollutants. Specifically, for there to be conformity, a federal action must not contribute to new violations of standards for ambient air quality, increase the frequency or severity of existing violations, or delay timely attainment of standards in the area of concern (e.g., a state or a smaller air quality region). The SBCAPCD has adopted the general conformity requirements in Rule 702. Rule 702 mirrors the federal general conformity requirements with the exception of Section 51.860, Mitigation Measures.

Air conformity requirements only apply to activities taking place in a federal nonattainment area and for those pollutants for which the area is in nonattainment. If an area has been in attainment for a standard since the standard was promulgated, the area is not subject to conformity review unless it becomes in nonattainment. If an area has been in nonattainment any time after the promulgation of a standard, it is subject to conformity review even if it comes into attainment at some later time.

*Prevention of Significant Deterioration Program*

The U.S. Environmental Protection Agency (EPA) implements the PSD Program. The purpose of the PSD Program is to provide for the review of new and modified stationary sources of air pollution. PSD Program requirements apply to all new stationary sources and all modifications to existing stationary sources which would emit or may emit any attainment pollutants. The PSD Program applies to major stationary sources with annual emissions exceeding either 100 or 250 tons per year depending on the source, or that cause or contribute to adverse impacts to any federally classified Class I area.

The SBCAPCD adopted rules and regulations to address PSD, which include a series of New Source Review rules to ensure compliance and protection of Class I areas. In summary,

Best Available Control Technology (BACT) must be applied to a new stationary source or modification of an existing source for any emissions increase of any attainment pollutant which is equal to or greater than any emission level shown in SBCAPCD Rule 803, Prevention of Significant Deterioration. BACT shall be implemented to reduce emissions for each pollutant to the maximum extent through modifications to production processes or available methods, systems, or techniques while taking into account energy demand, costs, and environmental and economic impacts. These may include fuel cleaning or treatment techniques or innovative fuel combustion techniques for control of such pollutants.

#### *Santa Barbara Clean Air Plan (CAP)*

To ensure continued progress toward clean air and compliance with State and federal requirements, the SBCAPCD, in conjunction with the California Air Resources Board (CARB), the Santa Barbara County Association of Governments (SBCAG), and the EPA, prepared the 2019 Ozone Plan (2019 CAP).

The 2019 CAP addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2019 CAP determines the level of compliance required to maintain the federal 8-hour ozone standard and attain the State 1-hour ozone standard. The document highlights the strategies to reduce ozone and its precursors, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under the CAA and to facilitate the transition from the federal 1-hour ozone standard to the new 8-hour ozone standard. The EPA established planning requirements for areas such as Santa Barbara County that (1) had attained the federal 1-hour ozone standard by June 15, 2004; (2) were subject to a maintenance plan for the federal 1-hour ozone standard; and (3) are classified as attainment for the federal 8-hour ozone standard. These requirements provide “anti-backsliding” provisions specifying which of the federal 1-hour ozone obligations would continue to apply and required submission of a 10-year maintenance plan for the 8-hour federal ozone standard under Section 110(a)(1) of the CAA Amendments.

The 2019 CAP employs the most up-to-date scientific and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, on-road and off-road mobile sources, and area sources. The 2019 CAP proposes methods that the SBCAPCD will use to reach attainment for all NAAQS and CAAQS.

#### *Local Thresholds*

The Air Quality Section of the Santa Barbara County Environmental Thresholds and Guidelines Manual (January 2021), the SBCAPCD Scope and Content of Air Quality Sections in Environmental Documents (2017), and the SBCAPCD Environmental Review Guidelines (2015) contain air quality significance criteria. Where applicable, quantitative significance criteria established by the local air quality management district or air pollution control district may be relied upon to make significance determinations based on mass emissions of criteria pollutants.

**Significance Criteria:**

The existing air quality based on the area’s status with respect to the CAAQS/NAAQS is a factor in determining if emissions from a project have the potential to cause a significant air quality impact. Table 3-2 summarizes the current attainment status of Santa Barbara County with respect to the CAAQS (the County is designated as attainment or unclassified for all NAAQS).

**Table 3-2: SBCAPCD CAAQS Attainment Status for Criteria Pollutants**

Pollutant	SBCAPCD CAAQS Attainment Status
Reactive Organic Compounds (ROCs)	Attainment
Oxides of Nitrogen (NO <sub>x</sub> )	Attainment
Carbon Monoxide (CO)	Attainment
Sulfur Dioxide (SO <sub>2</sub> )	Attainment
Respirable Particulate Matter (PM <sub>10</sub> )	Nonattainment
Fine Particulate Matter (PM <sub>2.5</sub> )	Attainment/Unclassified

The SBCAPCD considers ROC, NO<sub>x</sub>, and oxides of sulfur (SO<sub>x</sub>) to be particulate matter (PM) precursors, which impacts offset thresholds and therefore CEQA thresholds. The CEQA significance thresholds applied within the SBCAPCD are discussed in several SBCAPCD and Santa Barbara County Planning and Development (SBCP&D) documents (SBCAPCD Scope and Content of Air Quality Sections in Environmental Documents, 2017, 2015; SBCP&D Environmental Thresholds and Guidelines Manual, 2015). For instance, the SBCAPCD Scope and Content of Air Quality Sections in Environmental Documents (2017) discusses the significance criteria for projects where the SBCAPCD is a Lead, Responsible, or Concerned Agency. Most of the discussion of thresholds is focused on the long-term operation of permanent stationary sources. The SBCAPCD Board did not adopt quantitative significance thresholds for temporary short-term construction projects; however, they do provide a guideline. The SBCAPCD recommends that construction-related NO<sub>x</sub>, ROC, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions from diesel- and gasoline-powered equipment, paving, and other activities be quantified.

For ongoing operations, the SBCAPCD Scope and Content of Air Quality Sections in Environmental Documents (2017) states:

*A proposed project will not have a significant impact on air quality, either individually or cumulatively, if operation of the project will:*

- *emit (from all project sources, both stationary and mobile) less than the daily trigger for offsets or Air Quality Impact Analysis set in the APCD New Source Review Rule, for any pollutant [...]; and*
- *emit less than 25 pounds per day of NO<sub>x</sub> or ROC from motor vehicle trips only; and*
- *not cause or contribute to a violation of any California or National Ambient Air Quality Standard (except ozone); and*
- *not exceed the APCD health risk public notification thresholds adopted by the APCD Board (10 excess cancer cases in a million for cancer risk and a Hazard Index of more than one (1.0) for non-cancer risk; and*

- *be consistent with the latest adopted federal and state air quality plans for Santa Barbara County.*

These thresholds and guidelines are summarized in Table 3-3.

**Table 3-3: SBCAPCD Significance Thresholds for Criteria and Toxic Air Pollutants**

Pollutant	Project Construction	Project Operation
ROC	25 tons/year (guideline)	120 lbs/day
NO <sub>x</sub>	25 tons/year (guideline)	120 lbs/day
CO	–	500 lbs/day
SO <sub>x</sub>	–	120 lbs/day
PM <sub>10</sub>	–	80 lbs/day
PM <sub>2.5</sub>	–	55 lbs/day
TACs (including carcinogens and non-carcinogens)	Maximum Cancer Risk $\geq 10$ in one million	
	Chronic & Acute Hazard Index $\geq 1.0$ (project increment)	
Odor	Project creates an odor nuisance pursuant to Rule 402	

**Methodology:**

The construction analysis for the proposed Project was performed using the California Emissions Estimator Model® (CalEEMod), version 2016.3.2, the official statewide land use computer model designed to provide a uniform platform for estimating potential criteria pollutant and greenhouse gas (GHG) emissions associated with construction and operations of land use projects under CEQA. CalEEMod was developed by the California Air Pollution Control Officers Association (CAPCOA) in collaboration with the SBCAPCD and other California air districts. Default land use data (e.g., emission factors, trip lengths, meteorology, source inventory, etc.) were provided by the various California air districts to account for local requirements and conditions. As the official assessment methodology for land use projects in California, CalEEMod is relied upon herein for construction emissions quantification, which forms the basis for the impact analyses.

The model quantifies direct emissions from construction and operations (including vehicle use), as well as indirect emissions, such as GHG emissions from energy use, solid waste disposal, vegetation planting and/or removal, and water use. The mobile source emission factors used in the model – published by CARB – include the Pavley standards and Low Carbon Fuel Standard. The model also identifies project design features, regulatory measures, and mitigation measures to reduce criteria pollutant and GHG emissions along with calculating the benefits achieved from the selected measures. The model provides “unmitigated” and “mitigated” emissions outputs, wherein default mitigations are applied based on typical California construction equipment and vehicle fleets for a variety of activities. For instance, in this case, respirable particulate matter (PM<sub>10</sub>) fugitive dust during construction is expected to be mitigated approximately 50% by water application and lowered speed limits on unpaved roads and construction areas. All construction emissions presented are unmitigated.

The 2018 fleet average off-road equipment emission factors contained in CalEEMod account for statistically determined portions of newer post-2000 Tier 2, 3, and 4 equipment that may be available for the proposed Project, whether contractor-owned or rented.

The following basic assumptions were used in developing the emissions estimates for the proposed Project using CalEEMod:

- Project information, including dimensions, schedules, and equipment and vehicle lists, was provided by Hazen and/or based on typical construction scenarios;
- Import/Export volumes and trip counts were provided by Hazen;
- Default construction equipment horsepower ratings and load factors contained in CalEEMod were applied to all phases of the Project;
- Default age-weighted fleet average off-road equipment and on-road vehicle emission factors for the earliest possible construction dates (i.e., fourth quarter 2021) were applied to all phases of the Project, which is conservative and represents upper-bound estimates of emissions; and
- There is no change in operational emissions from vehicles, as there are no additional permanent personnel planned as part of this Project. A small number of specialized maintenance workers' on-road light-duty vehicles (e.g., pickup trucks) that may occasionally visit the site would be negligible.

The ongoing Project emissions from the CHP engine were quantified using:

- EPA AP-42 emission factors for PM, which was assumed to all be Fine Particulate Matter (with a diameter of 2.5 microns or less);
- Engine Manufacturer specifications for CO emissions;
- BACT 3.6 requirements for ROC;
- SBCAPCD Rule 333 limits for NO<sub>x</sub>; and
- SBCAPCD Rule 311 limits for SO<sub>x</sub>.

The digester is not a source of emissions because it is a pressure vessel.

***Environmental Determination:***

***a) Conflict with or obstruct implementation of the applicable air quality plan?***

**Impact:** Less Than Significant

In order to achieve attainment for Ozone standards, the SBCAPCD lays out a series of steps in the 2019 Ozone Plan. For stationary source emissions, the plan identifies several changes to SBCAPCD rules (Rules 260, 321, 342, 351, 354, and 361). No new control measures are identified, but there are several new Best Available Retrofit Control Technology (BARCT) standards (for equipment subject to Rules 333, 358, 362, 363) and several contingency measures (for equipment subject to Rules 321, 351, 354). Rules 260, 321, 342, 351, 354, 358, 361, 362, and 363 are not applicable to the proposed Project. Although Rule 333 is applicable to the proposed engine, BARCT standards apply to existing equipment that will require retrofit. The proposed engine is new and will not require retrofiting.

Previous Clean Air Plans from the SBCAPCD also address stationary sources and stationary source emission reductions through rule development.

The Project does have stationary source emissions which are of concern for ozone compliance; however, the Project complies with all applicable SBCAPCD rules per the permit application submitted in December 2021 and will continue to comply with applicable rules and standards. As a result, the stationary sources should not be considered conflicting with any clean air or ozone plan from the SBCACPD.

In addition to stationary source emissions reductions, the 2019 Ozone Plan and previous clean air plans from the SBCAPCD address transportation emissions. The proposed Project does not result in any population increases, nor does it result in any additional commuting. As a result, the transportation emissions from the proposed Project should be considered negligible.

Short-term construction, transportation, and equipment emissions are discussed in more detail in the next section.

The proposed Project will comply with applicable rules and regulations, including New Source Review, and hence will not conflict with or obstruct implementation of the applicable air quality plan.

***b) 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?***

Impact: Less Than Significant with Mitigation Incorporated

The SBCAPCD has stated that they do not currently have quantitative thresholds of significance in place for short-term or construction emissions; however, SBCAPCD uses 25 tons per year for ROC or NO<sub>x</sub> as a guideline for determining the significance of construction impacts. Because Santa Barbara County is nonattainment for PM<sub>10</sub>, all projects are expected to implement the listed best management practices for dust control during construction.

Both the SBCAPCD and the County suggest quantifying construction emissions. Based on the equipment list and projected truck trips provided, Table 3-4 below shows that construction emissions are below the SBCAPCD suggested guideline of 25 tons per year. Table 3-4 also fulfills the recommendation to quantify Project construction emissions. Further detail on the construction emissions can be found in Appendix B. Impacts from construction emissions are less than significant.

**Table 3-4: Project Construction Emissions**

Criteria Pollutants	Peak Emissions (lbs/day)	Peak Emissions (tons/year)	SBCAPCD Guidelines (tons/year)	Significance
ROC	2.9	0.1	25	LTS
NO <sub>x</sub>	20.5	1.4	25	LTS
CO	15.7	1.0	-	LTS
SO <sub>x</sub>	0.03	0.002	-	LTS
Total PM <sub>10</sub>	1.1	0.1	-	LTSM
Total PM <sub>2.5</sub>	0.9	0.1	-	LTSM

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Sources: CalEEMod version 2020.4.0.

Notes:

lbs/day are winter or summer maxima for planned land use.

Total PM<sub>10</sub> / PM<sub>2.5</sub> comprises fugitive dust plus engine exhaust.

LTS – Less Than Significant, LTSM – Less Than Significant with Mitigation Incorporated.

Operational emissions were also quantified, as shown in Table 3-5. Emissions from the CHP engine and ongoing architectural coatings (up to 5,000 square feet of exterior non-residential painting, to account for required piping painting) were calculated using AP-42 emission factors, manufacturer specifications, BACT requirements, SBCAPCD rule limits, and CalEEMod (for the painting). Emissions are compared to the Air Quality Impact Analysis (AQIA) and Offset Thresholds in the SBCAPCD New Source Review rules, which are referenced by the SBCAPCD and Santa Barbara County CEQA guidelines and thresholds documents. The emissions as presented are controlled emissions, since the engine design includes an oxidation catalyst and gas pretreatment. As shown in Table 3-5, the impacts should be considered less than significant.

**Table 3-5: Project Operational (Ongoing) Emissions**

Criteria Pollutants	Project Emissions (lbs/day)	Project Emissions (tons/year)	AQIA Threshold (lbs/day)	Offset Thresholds (tons/year)	Significance
ROC	1.4	0.26	120	25	LTS
NO <sub>x</sub>	16.1	2.9	120	25	LTS
CO	27.5	5.0	500.0	–	LTS
SO <sub>x</sub>	2.2	0.4	120.0	25	LTS
Total PM <sub>10</sub>	0.3	0.06	80.0	25	LTS
Total PM <sub>2.5</sub>	0.3	0.06	55.0	25	LTS

Sources: SBCAPCD 2017, CalEEMod version 2020.4.0.

Notes:

SBCAPCD thresholds are “emit (from all project sources, both stationary and mobile) less than the daily trigger for offsets or AQIA set in the APCD New Source Review Rule, for any pollutant (i.e., 120 lbs/day for ROC or NO<sub>x</sub>; and 80 lbs/day for PM<sub>10</sub>. There is no daily operational threshold for CO since it is an attainment pollutant).”

County thresholds are “emit (from all project sources, mobile and stationary), less than the daily trigger for offsets set in the APCD New Source Review Rule, for any pollutant.”

lbs/day and tons/year are CHP emissions at 100% load operating 100% of the time, plus winter or summer maxima for planned land use.

Total PM<sub>10</sub>/PM<sub>2.5</sub> comprises fugitive dust plus engine exhaust.

LTS – Less Than Significant.

There are no Project-related ongoing emissions from vehicle traffic since the proposed Project is not expected to result in any additional vehicle trips after construction is complete. No additional workers are expected to be needed for the Project. The few additional trips from specialized services (e.g., engine maintenance professionals) are expected to be negligible from an emissions standpoint. The additional digester is not expected to create additional hauling trips. The SBCAPCD and the County of Santa Barbara have potential significance thresholds of 25 pounds per day of NO<sub>x</sub> or ROC from motor vehicle trips. Since there are no permanent additional vehicle trips associated with



the Project, the Project will not exceed these thresholds, and the impacts are less than significant.

**c) *Expose sensitive receptors to substantial pollutant concentrations?***

Impact: Less Than Significant

The SBCAPCD’s and Santa Barbara County’s environmental thresholds indicate that a cancer risk of less than 10 in one million and a chronic and acute hazard index of less than 1 are acceptable. A Health Risk Assessment (HRA) was completed for permitting and indicated that risks will be less than 10% of these significance thresholds, as shown in Table 3-6.

**Table 3-6: Project Related Health Risks**

Health Risk	Receptor Type	Value	Target Organ	SBCAPCD Significant Risk Threshold
Cancer Risk (in one million)	Resident	0.2	–	≥ 10
Cancer Risk (in one million)	Worker	0.1	–	≥ 10
Chronic Non-Cancer Risk	Resident	0.012	Respiratory System	> 1.0
Chronic Non-Cancer Risk	Worker	0.024	Respiratory System	> 1.0
8-hour Chronic Non-Cancer Risk	Worker	0.002	Blood	> 1.0
Acute Non-Cancer Risk	Point of Maximum Impact (PMI)	0.011	Reproductive/ Developmental System	> 1.0

**d) *Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?***

Impact: Less Than Significant

Odor impacts on residential areas and other sensitive receptors warrant the closest scrutiny, but consideration shall also be given to other land uses where people may congregate, such as recreational facilities, work sites and commercial areas, and the buffer zone.

Under GSD’s SBCAPCD PTO 08561-R9 01528, GSD monitors the digester gas H<sub>2</sub>S (peak and monthly average), which ensures proper process operation.

There are no expected significant visible, odorous, or other nuisance emissions expected from the proposed Project. Although WRRFs are, in general, sources of odors, a digester gas engine is not expected to produce noticeable odors when functioning properly, and digesters are sealed vessels and should not be emitting odors. Additionally, ferric chloride is added into the sludge streams to minimize the production of H<sub>2</sub>S in the digester gas, which should help reduce odors during digester gas combustion and in the event any digester gas were to be emitted from the digester.

The proposed Project is surrounded by open land and the Santa Barbara Airport; therefore, the potential to expose a substantial number of people to objectionable odors is minimized. Although the WRRF has had odor complaints in the past, these events were due to eutrophication of the slough and would not be expected to be caused by the proposed Project. The impacts of other emissions should be considered less than significant.

***Cumulative Impacts:***

SBCAPCD's Environmental Review Guidelines for the Santa Barbara County Air Pollution Control District (2015) states that "Unless otherwise specified in published/adopted thresholds of significance and guidelines, a project's potential contribution to cumulative impacts is assessed utilizing the same significance criteria as those for project specific impacts." There is no indication that a project like this would have different thresholds of significance, and as a result, it can be assumed that this project does not have potential for significant cumulative impacts.

***Mitigation Measures:***

The SBCAPCD requires mitigation for air quality impacts and fugitive dust during construction. These requirements are outlined in mitigation measure MM-AIR-1; see Section 3.5.1 for details. Air quality impacts will be less than significant after the incorporation of this mitigation. Mitigation is not required during project operation.

**IV. Biological Resources**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>IV. Biological Resources.</b> Would the project:				
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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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 Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Existing Conditions:**

The Project site is located in Santa Barbara County, California, in the Goleta basin of the coastal plain. The Project area is located within the Goleta Slough watershed, northwest of the confluence of San Jose Creek, San Pedro Creek, Atascadero Creek, and Goleta Slough. San Pedro Creek is located adjacent to the eastern boundary of the Project site within an engineered channel. Atascadero Creek and San Jose Creek are located approximately 500 and 700 feet east of the Project site, respectively. Adjacent to the parcel to the south and west are estuarine wetlands. To the east is freshwater forested and freshwater emergent wetlands. The proposed Project is located in the coastal zone and is entirely within a developed parcel consisting of paved areas, buildings, concrete structures, and landscaping. Soils in this area are xerorthents (orthent soil with a xeric moisture regime) and cut and fill areas (USDA NRCS 2021). Within the property, vegetation is dominated by ornamental plantings and non-native species such as Bermuda grass (*Cynodon dactylon*) and perennial rye grass (*Festuca perennis*). The proximity to the Goleta Slough attracts a wide variety of bird species, with some species utilizing the solids stabilization basins as low-quality aquatic habitat.

**Regulatory Setting:**

*Vegetation*

The County’s Coastal Land Use Plan (County of Santa Barbara 2019) and the Eastern Goleta Valley Community Plan (County of Santa Barbara 2017) identify the following native plant communities as environmentally sensitive habitat areas: coastal sage scrub, riparian scrub, coastal bluff scrub, and native oak woodlands. Additionally, in September 2010, the California Department of Fish and Wildlife (CDFW) published the Natural Communities List (CDFW 2021a). In January 2018, the CDFW published a list containing California Sensitive Natural Communities (CSNC) (CDFW 2021a). The CSNC provides the current list of vegetation alliances, associations, and special stands. State and global rarity ranks are indicated for alliances and some associations; those with ranks 1-3 are considered sensitive. CDFW does not identify the State rank for every association or alliance combination found in California.

*Special-Status Plant Species*

For the purposes of the analysis presented herein, special-status plant species are defined as those that:

- Have been designated as either rare, threatened, or endangered by CDFW or the U.S. Fish and Wildlife Service (USFWS) and are protected under either the California Endangered Species Act (California Fish and Game Code Section 2050 et seq.) or federal Endangered Species Act (16 USC 1531 et seq.) or meet the CEQA definition for endangered, rare, or threatened (14 CCR 15380[b],[d]);
- Are candidate species being considered or proposed for listing under these same acts; or
- Are of expressed concern to resource/regulatory agencies or local jurisdictions. This includes plants included on the CDFW Special Plants List (CDFW 2021b) and species with a California Rare Plant Ranking (CRPR) of 1 or 2 in the California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2021). Plants included on the CNPS Inventory are classified as follows:
  - CRPR 1A: plants presumed extinct in California;
  - CRPR 1B: plants rare, threatened, or endangered in California and elsewhere; or
  - CRPR 2: plants rare, threatened, or endangered in California, but more common elsewhere.

Species of CRPR 3 or 4 may, but generally do not, qualify for protection under this provision. Species of CRPR 3 and 4 are those that require more information to determine status and plants of limited distribution. For this document, CNPS CRPR 4 species are considered “special-status” per CEQA guidelines if they meet one or more of the following criteria, which are some of the criteria CNPS uses to consider a species “locally rare:” (a) the area is considered a type locality (i.e., the area from which the plant was originally described) for that species, (b) populations are at the periphery of a species range, (c) occurrences are in areas where the taxon is especially uncommon or has sustained heavy losses, or (d) populations exhibit unusual morphology or occur on unusual substrates. The Rare Plants of Santa Barbara County (Wilken 2018) lists those native vascular plant taxa with a limited distribution in Santa Barbara County, regardless of their distribution elsewhere. The list includes vascular plant taxa that are currently known from one to five “occurrences.” Any two documented locations that were estimated to be more than 1 kilometer (approximately 0.6 miles) apart are considered separate occurrences.

#### *Special-Status Wildlife Species*

For the purposes of the analysis presented herein, special-status wildlife species are defined as those that:

- Have been designated as either rare, threatened, or endangered by CDFW or the USFWS and are protected under either the California Endangered Species Act (California Fish and Game Code Section 2050 et seq.) or federal Endangered Species Act (16 USC 1531 et seq.) or meet the CEQA definition for endangered, rare, or threatened (14 CCR 15380[b],[d]);
- Are candidate species being considered or proposed for listing under these same acts;

- Are fully protected by California Fish and Game Code Sections 3511, 4700, 5050, or 5515; or
- Are of expressed concern to resource/regulatory agencies or local jurisdictions. This includes wildlife that are considered a State Species of Special Concern (SSC) or are on the CDFW Watch List.

Findings related to special-status plants and wildlife were later cross-referenced against habitat conditions, elevations, and soil types to determine the potential for occurrence.

#### *Aquatic Resources*

##### U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) Regulatory Program regulates the discharge of dredge or fill material within wetlands and other waters of the United States under Section 404 of the Clean Water Act (CWA). Since the Clean Water Rule (CWR) went into effect in California in August 2018, aquatic resources are evaluated under the definition of waters of the United States detailed in the CWR, which includes traditional navigable waters, interstate waters, territorial seas, impoundments of jurisdictional waters, covered tributaries, and covered adjacent waters. These waters are considered jurisdictional by rule. Other aquatic features that may constitute waters of the United States are analyzed on a case-specific basis through a significant nexus analysis. Characteristic indicators of potential wetland and other waters of the United States are essentially unchanged following implementation of the CWR. The discharge of dredge or fill material into wetlands and non-wetland waters of the United States requires authorization from USACE prior to impacts.

##### Regional Water Quality Control Board

The State of California has concurrent jurisdiction with the federal government over Section 401 of the CWA, Water Quality Certification, for jurisdictional wetlands and other waters of the United States. Under Section 401 of the CWA, each Regional Water Quality Control Board (RWQCB) regulates their respective region at the State level; at the federal level, USACE regulates all activities. Where isolated waters and wetlands (not subject to federal jurisdiction) are involved, the State will exert independent jurisdiction via the Porter-Cologne Act. Pursuant to the provisions of the State Porter-Cologne Act, the RWQCB regulates actions that would involve “discharging waste, or proposing to discharge waste, within any region that could affect the waters of the State” [California Water Code Section 13260(a)], which are defined as “any surface water or groundwater, including saline waters, within the boundaries of the state” [California Water Code Section 13050(e)]. The Porter-Cologne Act requires that each RWQCB “formulate and adopt water quality control plans for all areas within the region.” The resulting Water Quality Control Plan for the Central Coastal Basin lists the various waters uses; describes the water quality that must be maintained to allow those uses; includes an implementation plan that describes the programs, plans, and actions necessary to achieve the standards established in the plan; and describes statewide and regional surveillance and monitoring programs (RWQCB 2019).

The State Water Resources Control Board (SWRCB) has moved forward with adoption of Procedures for Discharges of Dredged or Fill Material to Waters of the State, and for the first time, uniform standards and definitions will be in place dictating regulation and review of applications for discharge to wetlands (i.e., development, operations and maintenance, and other dredge/fill activities) throughout the State’s nine regional boards. The new procedures are effective for applications (primarily for 401 Water Quality Certifications) submitted after January 2, 2020. Applications submitted prior to that date, whether deemed complete or not, are not subject to the new procedures. The standards come after a decade of preparation and several months of intensive stakeholder workshops. Activities that will potentially affect water quality within waters of the State require authorization from the RWQCB prior to impacts.

#### California Department of Fish and Wildlife

Under California Fish and Game Code Sections 1600–1616, CDFW has authority to regulate work that will substantially divert or obstruct the natural flow or substantially change or use any material from the bed, channel, or bank of any river, stream, or lake. CDFW jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. Furthermore, CDFW jurisdiction extends to the upland edge of riparian habitat, which is defined as the vegetation supported by the hydrologic conditions within a jurisdictional waterway. Under the CDFW definition, a watercourse need not exhibit evidence of an ordinary high water mark to be under CDFW jurisdiction. CDFW does not have jurisdiction over ocean or shoreline resources. Based on more recent decisions, CDFW may also exert jurisdiction to “one-parameter” wetlands displaying positive indicators for one of the three wetland indicators (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) based on a case-specific analysis. Activities that will potentially affect jurisdictional lake or streambed resources require authorization from CDFW prior to impacts.

#### Local Coastal Plan

The County of Santa Barbara (2019) defines wetlands as lands within the coastal zone that may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens. The definition of wetland used by the County of Santa Barbara is adopted from the California Coastal Act (California PRC Section 30121) and defines broadly areas that may be determined to be wetlands and are therefore subject to regulation.

#### ***Methodology:***

##### *Literature Review*

Prior to the field visit conducted by Dudek as part of this environmental analysis, the locations of documented special-status plant and wildlife species near the Project area and the species that have potential to occur on-site were identified through a query of the California Natural Diversity Database (CDFW 2021c), USFWS Information for Planning and Consultation (IPaC 2021), CNPS (2021), and the updated Rare Plants of Santa Barbara County (Wilken 2018).

### *Vegetation Mapping*

Nomenclature for on-site vegetation communities reflects the most current system, Manual of California Vegetation, Second Edition (MCV2), and CSNC. Vegetation communities were mapped based on these sources, and the rarity rankings of the vegetation communities were referenced from A Manual of California Vegetation, Online Edition (CNPS 2021). If the vegetation observed did not meet the membership rules of the vegetation communities in these sources, a new name was recorded based on the dominant species observed, consistent with the MCV2.

The following minimum vegetation mapping units applied during vegetation mapping:

- 0.5–1.0 acre for inaccessible areas of the site due to steep terrain;
- 0.1 acre for wetland (i.e., hydrophytic) vegetation in traditional wetland environments [i.e., not all facultative (plant species equally likely to occur in wetlands and non-wetlands) species comprising a vegetation alliance will be mapped unless associated with a hydrologic unit – stream, depression, swale, etc.]; and
- 0.1 acre for sensitive vegetation communities.

### *Plant Species*

Dudek biologists familiar with the target special-status plant species and general flora of coastal Santa Barbara County conducted reconnaissance-level plant species surveys. During the surveys, if a special-status species was observed, the occurrence was mapped using the Environmental Systems Research Institute (ESRI) Collector.

Native and naturalized plant species encountered during the surveys were identified and recorded. Scientific and common names for plant species with a CRPR follow the CNPS Online Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2021). For plant species without a CRPR, scientific names follow the Jepson Interchange List of Currently Accepted Names of Native and Naturalized Plants of California (Jepson Flora Project 2021), and common names follow the California Natural Community List (CDFW 2021a) or the U.S. Department of Agriculture Natural Resources Conservation Service Plants Database (USDA 2021). The cumulative list of plants identified is included as Appendix C.

### *Wildlife Species*

During the general biological survey, a reconnaissance-level survey was performed documenting observed wildlife species. No focused special-status wildlife species surveys were performed. During all surveys, wildlife species detected by sight, audio cues, tracks, scat, or other sign were noted. Any habitat for special-status species was also noted. The locations of any special-status species observed were recorded using a Trimble GeoXT handheld GPS unit with sub-meter accuracy.

### *Aquatic Resources*

During the general biological survey, a reconnaissance-level survey was performed for aquatic resources. A formal aquatic resources delineation (i.e., wetland delineation) was not conducted.



**Site Evaluation:**

Dudek Biologist Andrea Dransfield conducted a general biological survey of the proposed Project area on February 9, 2021 (as shown in Table 3-7), surveying the temporary and permanent impact areas and a 200-foot buffer. Ms. Dransfield documented wildlife and plant species in the general project area, made note of vegetation communities, and conducted vegetation mapping and a quantitative assessment of impacts (both direct and indirect) to vegetation communities within the project site, as shown in Table 3-7 and Figure 3-1, Biological Resources. A secondary site visit by Associate Biologist Mackenzie Forgey was conducted to perform a reconnaissance-level aquatic resources survey.

**Table 3-7: Survey Dates, Times, Personnel, and Conditions for Biological Surveys**

Date	Time	Personnel	Survey Conditions	Survey Type
2/9/2021	0845-1100	Andrea Dransfield	55°F–56°F, 100% cloud cover, 0-2 mph winds	General Biological Survey
2/22/2021	0935-1100	Mackenzie Forgey	68°F–72°F, 0% cloud cover, 0-2 mph winds	Aquatic Resources Survey

Notes: mph = miles per hour.

**Vegetation Communities**

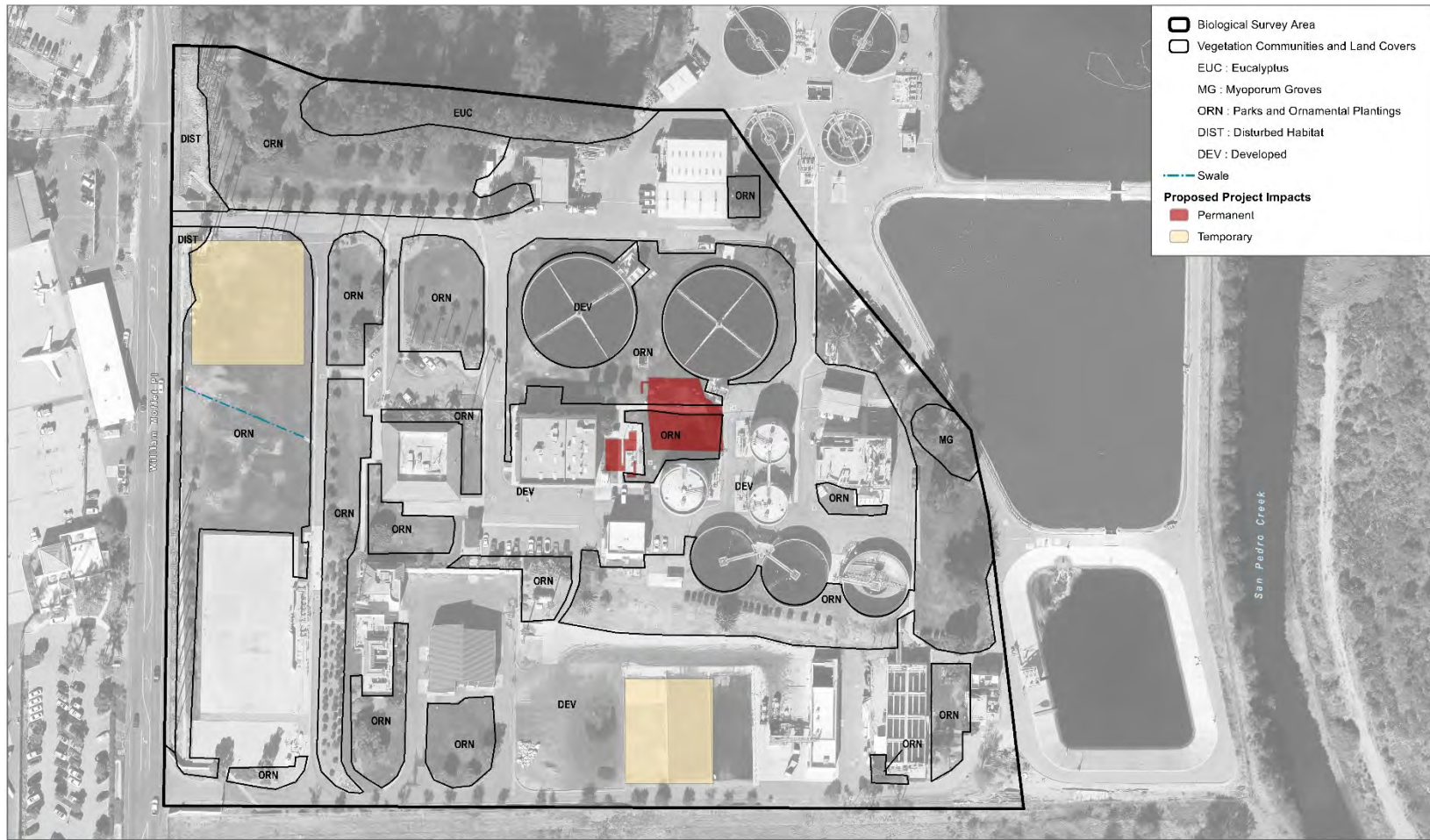
A total of five vegetation communities and land cover types were recorded within the biological survey area, all of which were non-native communities and land cover types (Figure 3-1 and Table 3-8). No sensitive vegetation communities were observed. Eucalyptus and myoporum are non-native and do not have a State rank [state not ranked (SNR)]. The other three communities and land cover types are not listed in CSNC or MCV2. The proposed Project would disturb approximately 0.93 acres of non-native plant communities or developed area (non-environmentally sensitive habitat areas). More specifically, the Project would temporarily disturb 0.74 acres of developed, disturbed, and ornamental plantings and permanently disturb 0.19 acres of developed and ornamental plantings.

**Table 3-8: Summary of Existing Vegetation Communities and Land Cover Types**

	General Habitat	Vegetation Community	Global, State Rank	Acreage
Non-Native Communities and Land Cover Types	Non-Native Communities	Eucalyptus	GNR, SNR	0.46
		Myoporum Groves	GNR, SNR	0.1
		Parks and Ornamental Plantings	NA	6.42
	Land Cover Types	Developed	NA	9.96
		Disturbed Habitat	NA	0.42
<i>Non-Native Communities and Land Cover Types</i>				<i>17.37</i>
<b>COMBINED TOTAL</b>				<b>17.37</b>

Notes: GNR = globally not rare; NA = not applicable. Not included in CSNC (CDFW 2021a); SNR = state not ranked.

**Figure 3-1: Biological Resources**



SOURCE: CIRGIS 2017, Hazen 2021



**FIGURE 3-1**  
 Biological Resources

Goleta Sanitary District Biosolids and Energy Phase 1 Preliminary Design Project

### *Non-Native Communities*

- Eucalyptus (GNR, SNR)

Eucalyptus is listed in MCV2 (Sawyer et al. 2009) and CSNC (CDFW 2021a) but does not have a global rank or State rank as it is composed of non-native species; it is not considered sensitive. Eucalyptus contains eucalyptus trees (*Eucalyptus* spp.) as the dominant species in the tree canopy. The groves have an open to continuous tree canopy less than 60 meters (197 feet) in height. Understory shrubs and herbaceous layers are sparse to intermittent, and the herbaceous layer is sparse to intermittent. Throughout California, eucalyptus grove semi-natural alliance occurs as planted trees, groves, and windbreaks, naturalized on uplands or bottomlands and adjacent to stream courses, lakes, or levees (Sawyer et al. 2009). Approximately 0.46 acres of this community were identified in the biological survey area.

- Myoporum Groves (GNR, SNR)

Myoporum groves are listed in MCV2 (Sawyer et al. 2009) and CSNC (CDFW 2021a) but do not have a global rank or State rank as they are composed of non-native species; they are not considered sensitive. Myoporum groves consist of myoporum (*Myoporum laetum*) as the dominant species in the tree canopy. The groves have an open to continuous tree canopy less than 18 meters (59 feet) in height. Understory shrubs are infrequent or common and the herbaceous layer is simple to diverse. Throughout central and southern California, myoporum grove woodland semi-natural alliances occur in coastal canyons, washes, slopes, riparian areas, and roadsides. Myoporum trees form dense single-species stands in coastal areas (Sawyer et al. 2009). Approximately 0.10 acre of this community was identified in the biological survey area.

- Parks and Ornamental Plantings

This community is not described in CSNC or MCV2 because it is not a naturally occurring community in California; it is not considered sensitive. It includes landscaping plants as dominants. The ornamental vegetation community in the proposed trail alignment is characterized by the dominance of landscaped plant species. It occurs throughout the property (Figure 3-1). Approximately 6.42 acres of this community were identified in the biological survey area.

### *Land Cover Types*

- Developed

Within the biological survey area, developed areas are unvegetated areas, such as pavement and development with impervious materials. Developed areas include roads, parking lots, buildings, and concrete structures (Figure 3-1). Approximately 9.96 acres of developed area were identified in the biological survey area.

- Disturbed Habitat

This land cover type, which is not described in the Natural Communities List or MCV2, includes invasive non-native and other disturbance-tolerant species as

dominants. Species occurring within this community, including some natives, are those that are tolerant to disturbances such as grading or vegetation clearing. On-site, species appearing in disturbed areas include poison hemlock (*Conium maculatum*), black mustard (*Brassica nigra*), Hottentot fig (*Carpobrotus edulis*) and horseweed (*Erigeron canadensis*). Approximately 0.42 acres of this land cover type were identified in the biological survey area.

#### *Plant Species*

A total of 34 plant species were observed and identified. Of these, 5 (15%) are considered native and 29 (85%) are considered non-native to California. The California Natural Diversity Database (CDFW 2021c) query returned 14 special-status plant species that have been documented within the four adjacent quadrangles. Based on Dudek's habitat suitability analysis including elevation and habitats, 10 of the special-status plant species had a low potential to occur within the Project site. These special-status plant species include Miles' milk-vetch (*Astragalus didymocarpus* var. *milesianus*), Coulter's saltbush (*Atriplex coulteri*), Davidson's saltscale (*Atriplex serenana* var. *davidsonii*), southern tarplant (*Centromadia parryi* ssp. *australis*), Contra Costa goldfields (*Lasthenia conjugens*), Santa Barbara honeysuckle (*Lonicera subspicata* var. *subspicata*), Carmel Valley malacothrix (*Malacothrix saxatilis* var. *arachnoidea*), Nuttall's scrub oak (*Quercus dumosa*), black-flowered figwort (*Scrophularia atrata*), and estuary seablite (*Suaeda esteroa*).

No federal, State, or CNPS CRPR plant species were observed.

#### *Trees*

There are no native tree species within the temporary or permanent impact areas.

#### *Wildlife Species*

A total of 31 wildlife species (30 birds and 1 mammal) were either directly observed or detected based on vocal cues or observation of sign (Appendix C). A variety of special-status wildlife occurs within 5 miles of the Project site, including the Monarch butterfly (*Danaus plexippus*; Special Animal) overwintering population, tidewater goby [*Eucyclogobius newberryi*; federally endangered (FE)], southern steelhead (*Oncorhynchus mykiss irideus*; FE), California red-legged frog [*Rana draytonii*; federally threatened (FT)], northern California legless lizard (*Anniella pulchra*; SSC), two-striped garter snake (*Thamnophis hammondi*; SSC), white-tailed kite [*Elanus leucurus*; State fully protected (FP)]; light-footed Ridgeway's rail [*Rallus obsoletus levipes*; FE, State endangered (SE), FP], western snowy plover (*Charadrius nivosus nivosus*; FT), tricolored blackbird (*Agelaius tricolor*; USFWS Bird of Conservation Concern, SSC, State threatened), California least tern (*Sterna antillarum brownii*; FE, SE, FP), and Belding's savannah sparrow (*Passerculus sandwichensis beldingi*). Great blue heron (*Ardea Herodias*) and great egret (*Ardea alba*) nest at nearby Goleta Beach and can occur on-site. These species have the potential to hunt gophers that occur on the Project site lawn near where the staging area will be located. However, they have many other foraging opportunities in the area. Many avian species, including the great blue heron and great egret, have protection solely for nesting colonies, and none occur at the GSD site. The settling lagoons are also poor foraging habitat for these species. California least tern and western snowy plover also will

not nest at this location. Belding's savannah sparrow may occasionally forage on the property but has no potential to nest. Light-footed Ridgway's rail formerly occurred at Goleta Slough, but no longer occurs in the County, and GSD does not support any suitable habitat.

Monarch butterflies are also protected under the County (County of Santa Barbara 2019). Several eucalyptus trees are located at the northwestern section of the site, but these do not provide suitable roosting habitat for monarchs due to configuration and are not a known roosting area. These trees are not native or naturally occurring.

Habitat is lacking on-site for all other special-status wildlife species known to occur within 5 miles of the site, with the exception of Cooper's hawk (*Accipiter cooperii*). This bird of prey species has the potential to nest in trees (eucalyptus) along the northwestern boundary of the site, but not within the proposed development areas. Otherwise, no habitat for special-status wildlife species was found and no special-status wildlife species were detected during the field survey.

#### *Wildlife Movement Corridors*

The site is located in a developed area and does not connect important habitat areas used by large or small wildlife species. In addition, chain-link fencing borders the property and provides impediments to wildlife movement. Medium-sized mammal species such as the striped skunk (*Mephitis mephitis*) or northern raccoon (*Procyon lotor*) may move locally along the coast.

#### *Aquatic Resources*

No jurisdictional features were detected during the field survey. Standard construction site BMPs apply to protect storm water resources and the environment.

#### *Significance Criteria:*

The County's Environmental Guidelines and Thresholds were used in this analysis (County of Santa Barbara 2008). Impacts to habitat types may be considered significant if they substantially (1) reduce or eliminate species diversity or abundance; (2) reduce or eliminate the quality of nesting areas; (3) limit reproductive capacity through losses of individuals or habitat; (4) fragment, eliminate, or otherwise disrupt foraging areas and/or access to food sources; (5) limit or fragment range and movement; or (6) interfere with natural processes, such as fire or flooding, upon which the habitat depends.

#### *Environmental Determination:*

- 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 Wildlife or U.S. Fish and Wildlife Service?***

Impact: Less Than Significant with Mitigation Incorporated

No special-status plant or wildlife species were observed within the biological survey area. Therefore, impacts to special-status species from Project disturbances in the temporary and permanent impact areas would be less than significant.

In addition, 28 species of native birds were detected on-site, including several with the potential to nest there. Nests, eggs, and nestlings of all native bird species are protected by the Migratory Bird Treaty Act and the California Fish and Game Code. Vegetation clearing and grading, if occurring during the nesting season (January 15<sup>th</sup> to September 15<sup>th</sup>), may have the potential to destroy nests, eggs, and nestlings, which could violate these regulations. Therefore, impacts to nesting birds from Project disturbances would be potentially significant without mitigation.

***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 Wildlife or U.S. Fish and Wildlife Service?***

Impact: No Impact

No sensitive communities were detected within or immediately adjacent to the impact area; therefore, no impacts to sensitive communities would occur. The Santa Barbara County Environmentally Sensitive Habitat (ESH) and Riparian Corridor (RC) overlays identifies three mapped ESH features, including San Pedro Creek, within or adjacent to the parcel. These features are more than 200 feet from the impact area (100-foot buffer required per Coastal Land Use Plan).

***c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?***

Impact: No Impact

No wetlands or streams were detected within or immediately adjacent to the impact area; therefore, no impacts to wetland or streams would occur. The National Wetlands Inventory identifies predominantly freshwater emergent wetlands surrounding the project site. Collectively, these mapped wetlands are more than 100 feet from the impact area, adhering to the minimum buffer strip requirement per the Coastal Zoning Ordinance.

***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?***

Impact: Less than Significant

The proposed Project is within a developed area and does not connect important habitat areas used by large or small terrestrial wildlife species. In addition, the chain-link fence surrounding the property provides impediments to movement of larger and medium-sized wildlife. Medium-sized mammal species such as the striped skunk or northern raccoon may occasionally move locally along the coast. Therefore, impacts through interference with the movement of wildlife species would be less than significant.

***e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

Impact: Less than Significant

Two ornamental trees would be removed within the impact area. These trees are not native or naturally occurring. Therefore, the proposed Project does not conflict with any local tree preservation policy, and impacts to trees would be less than significant.

***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?***

Impact: No Impact

No habitat conservation plans apply to the Project area. No impact would occur.

***Cumulative Impacts:***

Cumulative development throughout the Goleta Slough would incrementally contribute to the loss of native plant communities and habitat area for wildlife species, which could cumulatively impact biological resources. However, all proposed development is within a developed parcel and would be consistent with the County's General Plan/Local Coastal Plan. With required mitigation, the proposed Project's contribution to cumulative biological resources impacts would not be considerable.

***Mitigation Measures:***

Please refer to Section 3.5.2 to review the biological mitigation measures. After implementation of Mitigation Measure MM-BIO-1, impacts to nesting birds if construction occurs during the bird nesting season would be less than significant. After implementation of Mitigation Measure MM-BIO-2, impacts to water quality from soil erosion during construction would be less than significant. Mitigation for biological resources is not required during project operation.

**V. Cultural Resources**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>V. Cultural Resources.</b> Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

***Existing Conditions:***

California has one of the best studied archaeological records in the world, and the Santa Barbara Channel is among the most studied regions of California. The basic regional culture historical patterns (i.e., what life was like at different points in time) have been articulated for many decades, and in spite of the ever increasing intensity of archaeological work in the region, our understanding (or at least our definition) of these general patterns has changed only slightly in part because our understanding of how to distinguish them has been compromised by conflicting data and interpretations; notable exceptions include our understanding of the earliest inhabitants, which keeps getting earlier and better defined (Erlandson et al. 2011; Erlandson, Rick, et al. 2007), and our perspectives on the late prehistoric evolution of socio-political complexity, which have matured and expanded rapidly since the late 1980s (e.g., Erlandson and Jones 2002; Arnold 2001, 2004).

The cultural history of the Santa Barbara Channel has seen many iterations, and much of our understanding of change through time is based on foundational research by Rogers (1929) and Warren (1968), both of whom conducted substantial primary research on the mainland coast. Higher resolution periodization was later established by King (1990), who used a combination of stylistic change in shell beads and absolute ages from radiocarbon dates. This bead-based chronology dovetails well with a more recent chronology based on lower-resolution changes in human behavior and material culture (Arnold 1992a), and this has been further refined with a larger set of absolute age estimates pegged to a background of regional environmental change matched with more accurate radiocarbon calibration (Kennett 2005).<sup>1</sup> The temporal span of each period in the sequence is approximate, and

<sup>1</sup> All dates provided herein are rounded and drawn from the literature. We attempt to maintain consistency by using calendar, calibrated, years before present (cal BP), which are essentially the same as saying “years ago.” However,



naming conventions for them vary across different authors; the cultural patterns (e.g., subsistence and settlement) and temporal markers (shell bead styles, for example) used to define them also vary across temporal boundaries by region.

*Paleoindian/Paleocoastal Period (The Earliest Inhabitants): 13,000-11,000 BP*

Though the earliest appearance of people in the New World is a contentious issue, with new data generating new ideas every few years about who they were and how they got here, the evidence from the California Bight is relatively straightforward: cultural deposits and human remains from a series of sites on Santa Rosa and San Miguel islands date from 13,000-11,500 years ago and suggest that people at the time were well-adapted to life on the sea but also had connections to people who lived much further east, deep in the American continent (Erlandson et al. 2011). While this is not the earliest evidence of human activity in the New World (which, at most, is somewhere between 16,000 and 15,000 years old), this early evidence from the West Coast gives credit to the idea that at least some of its earliest inhabitants were a marine-adapted people able to move skillfully and quickly between islands and near-shore environments across the southern landmass of the now submerged continent of Beringia, down the entire Pacific Coast of North America, and eventually to the southern tip of South America in only a few thousand years (Erlandson, Graham, et al. 2007; Fladmark 1979; Dixon 2001). Though these “Paleocoastal” sites from the islands are the earliest we know of, we may never find evidence for the earliest coastal inhabitants as the shorelines they lived on are now submerged under more than 50 meters of water (Masters and Aiello 2007). Sites of this antiquity are unknown on the mainland, though the occasional isolated and undated fluted projectile point (for example, from Gaviota State Park CA-SBA-1951) may be suggestive (Erlandson, Cooley, and Carrico 1987).

*Early Holocene/Milling Stone Horizon: 11,000-7,000 BP*

Many scholars of North American archaeology separate the Paleoindian/Paleocoastal period from the succeeding Archaic period on the rough (and now debatable) observation that the earlier people were more focused on large game, while the later people exploited a broader range of resources and required a different set of tools to do so. On a continent-wide scale, the Archaic therefore sits in the middle of a trajectory of increasing technological and social intensity, somewhere between big-game hunting and fully-fledged farming; in California, this crude trajectory has little value, as farming was never part of the pre-Columbian picture, yet use of the term “Archaic” persists (cf. Meighan 1959). Colloquially, it applies to everything from the Early Holocene to the end of the Middle-Late Period transition (ca. 11,000-1,000 years ago), distinguished only by the late prehistoric intensification of economy, technology, population, and political complexity (see Glassow 1992a for a slightly different interpretation). Here, the division between

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most authors prior to the mid-1990s (e.g., Glassow 1996) typically report in uncalibrated radiocarbon years before present, uncorrected for marine reservoir offsets; therefore, their cultural chronologies can differ from current age estimates for the same site (or cultural period) by 200-1,500 years, depending on the age and material dated. This is a general problem for the interpretation of California culture history, as even current authors use a mixture of differently reported dates. We have tried to account for this as much as possible herein, but it further suggests the need to maintain a large, fully vetted, and corrected radiocarbon database, preferably shared across multiple research teams and authors.

Paleoindian and Early Archaic is somewhat arbitrary, but follows current convention; likewise, we combine the earliest known settlements on the mainland coast in this period with those of the better documented Milling Stone Horizon because they exist in many of the same places, show evidence for the intensive use of shellfish, use many of the same tools (albeit in different proportions), and overlap in time.

One of the reasons these sites are so visible, stratified, and well preserved is they contain the remains of shellfish, leading many to suggest that this early Holocene occupation of the region was heavily oriented towards the intensive and persistent exploitation of marine resources. The material remains (and perhaps adaptations) of these earliest Holocene<sup>2</sup> inhabitants of the mainland occasionally differ not only from their predecessors on the islands, but also from their successors on the mainland. Some of these early sites also differ from the later coastal (and Coast Range interior) occupants, as they do not contain milling stones, which become increasingly common after about 8,500 years ago. However, it is important not to overstate the differences, as there are clearly sites dating to the early Holocene where groundstone dominates the formal lithic assemblage, both on the coast (Fitzgerald 2000) and deep into the interior (McGuire 1993). Contemporaneous variability in site types and artifact assemblages may point to variability in mobile foraging strategies or reveal that very different groups exploited an otherwise sparsely inhabited coastal region at slightly different times. These alternatives demand interrogation, as do the relationships between the evidence for human activity on the coast and that of the California interior and the more distant Desert West (Koerper, Langenwalter, and Schroth 1991).

While the emergence of an adaptation tuned to marine resources seems beyond question (particularly if the first people to come to coastal California brought this ability with them from somewhere else), the emergence of a processing technology centered on the use of groundstone slabs and handstones (i.e., the hallmarks of the Milling Stone Horizon) has been the focus of investigation for decades (see Warren 1968; Basgall and True 1985). Like shell middens, grinding tools, especially in high frequencies, are highly visible in the archaeological record and at face value can and have biased interpretation of their relative economic importance (Nelson and Lippmeier 1993). Recent efforts to understand the highly visible “Milling Stone” sites focus on patterns of groundstone manufacture and use. Following Basgall and True (1985), Hale (2001) analyzed groundstone (milling stones and handstones) and battered stone (scraper planes, cobble tools, etc.) tools from well-known Milling Stone sites across southern California, including CA-SBA-142 (Glen Annie Canyon) on the Santa Barbara mainland, and found that Milling Stone sites were places that people visited repeatedly over hundreds to thousands of years to conduct similar economic activities, perhaps for only short periods of time. The large numbers of reused or expedient groundstone tools at these sites speak to food processing. Indeed, regular use of milling tools for processing seeds and other plant foods, such as roots and tubers, does not preclude using them to process rodents, reptiles, and other animals (which might be more easily cooked or dried with less costly tools). Costs associated with acquiring and transporting raw materials suitable for milling and investments in shaping them to accomplish specific tasks may be modest (depending on local geology) but significant enough to suggest they were essential for survival; investing in them would make them

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<sup>2</sup> The Holocene is set at the end of the Younger Dryas, ca. 11,500 years ago (+/-).

available for use in less essential tasks, like pulverizing non-essential foods or pigments, that might otherwise be processed in other ways. Therefore, while milling stones may have been used for many things, their prominence indexes their importance to a specific adaptive strategy, and archaeological research should be geared towards understanding that relationship.

Hale (2001) interprets Milling Stone sites as places of seasonal occupation for intensive processing, but not as sedentary villages as Wallace (1955) and others envision. Large, well-used assemblages in single locations (as is typical of the classic Milling Stone identity) result from recurrent seasonal visits to specific locations for food processing over multiple years. The milling equipment in these kinds of sites are typically made from locally abundant stone (encountered either in its raw form or as previously discarded tools). Therefore, analysis of tool shaping and maintenance as well as use-wear reveals much about the nature and intensity of occupation and activity.

Hale (2001) also laments the rarity of other kinds of sites linked both temporally and socioeconomically to those of the Milling Stone period, as they would help to illustrate the full picture of the Archaic in California and help us to move beyond simple definitions of it as a period marked by economic drudgery imposed by marginalizing climatic regimes (e.g., the Altithermal – see Antevs 1948). Herein lies an important research avenue: assembling well-dated archaeological site data across broad regions to better understand socioeconomic nuance during the Archaic and abandoning the site-specific interpretation of the Milling Stone period that is itself an artifact of early archaeological research.

Generally speaking, adaptations attributed to the Archaic (including the Milling Stone phenomenon) involved small groups of people who moved regularly throughout the year to exploit a broad range of resources using a very flexible tool kit that could be made relatively easily or expediently and applied to a wide range of scenarios (Hale 2001; Fitzgerald and Jones 1999; Lantis 1938; Basgall and True 1985). Here, and elsewhere throughout the California Bight and central coast, the full suite of material attributes aligned with the classic Milling Stone horizon is found in a relatively small number of archaeological sites; together with evidence for somewhat different activities at other kinds of sites, presumably within the spatial catchment of annual or even generational human activity, the Milling Stone pattern reveals a “highly successful strategy of mobility, flexibility, and emphasis on low-risk, moderate-return resources, such as small game, shellfish, and certain plants... (that) seems downright practical” for the environmental and cultural context of the age (Stevens 2013: 54).

#### *The Early Period: 8,000-2,500 BP*

The identity of the California “Early Period” in Santa Barbara (in both definition and timing) differs from that of other parts of California. The problem arises from the naming conventions assigned to trends (i.e., the “Periods”) in the production and use of shell beads, which vary around the State (Bennyhoff and Hughes 1987; Groza 2002; Groza et al. 2011) rather than local conditions or broader patterns of behavior.<sup>3</sup> Instead, it helps to imagine

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<sup>3</sup> By contrast, archaeologists in other parts of the State have abandoned this confusion in favor of chronologies based on a broader range of material culture anchored to absolute dates (Rosenthal 2011; Rosenthal et al., 2007). Either way, these names and boundaries are all somewhat arbitrary, imprecise, and/or artificial.

this shift in quasi-adaptive terms, for example, the emergence of a “Hunting” people or period, marked quite notably by an increase in the abundance of projectile points and a decline in the relative abundance of milling stones (Rogers 1929). On the central coast, Jones and colleagues (Jones 1992; Jones and Coddling 2019; Jones et al. 2007) put the division somewhere between 5,500 and 5,100 BP, though others (Glassow et al. 2007; Lebow and Moratto 2005) see this transition happening around the northern California Bight at 7,500-7,000 BP; yet the use of milling stones continues here, and elsewhere in California, into the late Holocene (Erlandson 1997a, 1997b; Sutton, Schneider, and Yohe II 1993). Some (Hildebrandt, Ruby, and Kaijankoski 2020) suggest that the beginning of the Early Period on the Santa Barbara Coast (specifically at Goleta Lagoon) is defined by the appearance of mortars and pestles around 6,000 years ago and suggest that here (unlike elsewhere along the coast and into the interior), milling stones fell out of favor around this time. More conventionally, in the Santa Barbara Channel, the bead-based chronology defines the Early Period as the interval from circa 8,000-2,500 years ago, spanning several shifts in global climate as well as multiple changes in subsistence, behavior, and cultural manifestation (C.D. King 1990; Arnold 1992a; Kennett 2005).

Beyond the bead-based periodization, temporal distinctions are hazy, as identification of the Early Period as a clear-cut behavioral or cultural shift at a specific point in time is less obvious. In the literature from the mainland of the California Bight, some authors identify a change in patterns of settlement, specifically a shift away from a practice of relocating the entire residential settlement multiple times throughout the year (i.e., a “residentially mobile” pattern) to a pattern that entails moving the residential base only a few times a year (i.e., a “logistically mobile” pattern). For example, Glassow (1990, 1996) saw this shift happening at approximately 8,500 years ago for the broader region (prior to the dates he uses for the end of the Milling Stone Horizon), while research from the far northern end of the California Bight puts this shift much later, at approximately 3,000 years ago (Lebow et al. 2006). Unfortunately, the differences in interpretation make it difficult to identify or define temporal periods for the region on the basis of cultural behavior alone.

Use of milling equipment persists through this period, though the form and variety of the manos and metates change (Gamble and King 1997), while mortars and pestles were “added to the milling repertoire” around 6,000 years ago (Glassow et al. 2007: 197). At CA-SBA-053 on the Goleta Lagoon (today called Goleta Slough), milling stones and mortars in roughly the same proportions (and in greater numbers than in most any other excavated sites in the region) come from deposits dating to 5,650-5,050 BP (Harrison and Harrison 1966; Rick and Glassow 1999). Whether any of these things point to a change in diet is still an open question. Importantly, mortars are costly to make and signal an investment in processing technology much greater than the use of milling stones (Hale 2001, 2010). Such an investment was likely made to increase processing efficiency of pulpy nut meat such as acorns (Hale 2009). Glassow (1997) suggests that they could have been used to process bulrush and other estuarine resources, though milling stones would have offered similar efficiency in processing such things. It is certain, however, that the addition of mortars marks a socioeconomic shift that placed emphasis on intensive resource extraction and/or processing beyond that which could be accomplished using a basined milling stone. Perhaps this is the economic shift that identifies the onset of the Early Period. The extent to which this change in economy reflects change in the density and distribution

of subsistence resources as a function of regional environmental change at the end of the Mid-Holocene warm period, or “Altithermal” (Glassow 1997; Rick and Glassow 1999; Glassow, Wilcoxon, and Erlandson 1988), along with a decline in marine productivity associated with warming sea-surface temperatures (Kennett et al. 2007) is an important but unresolved issue.

A broad range of evidence regarding subsistence diversification, increasing sedentism, status differentiation, ritual activity, rock art, and population growth have all been marshalled to suggest that the second half of this interval (after 4,000 years ago, or what Lebow and Moratto call the “Late Early Period”) contains some of the earliest evidence for the evolution of cultural complexity in the region (Glassow et al. 2007; Erlandson and Rick 2002), though dramatic, fundamental change did not happen until the end of the Middle Period and into the Late Period.

*The Middle Period: 2,500-800 BP*

Glassow (1996: 22) suggests that the defining feature of this period is the elevated importance of fish and marine mammals in the subsistence budget. Appearance of the single-piece shell fishhook around 2,900 BP, along with increasing importance of notched stone sinkers, corroborates this and may have been essential to the intensification of the marine-based economy on the mainland as well as on the islands (Rick et al. 2002; Erlandson 1997b). Indeed, intertidal resources (namely shellfish) remained important to everyone living within walking distance of the coast. And though it seems clear that people in some places acquired more of their protein from large terrestrial and marine mammals during the Middle Period than did people in earlier periods (Lebow et al. 2007), shellfish was still the dominant source of protein throughout the region (Glassow 1992).

During this time, the old groundstone food processing slabs of the early and middle Holocene are mostly absent throughout the region, while mortars become more common and with increasing effort invested in their production (Glassow 1996; Hale 2009). Whether or not this shift from milling stones to mortars points to the rising importance of the acorn to the subsistence economy, as it is thought to do elsewhere in California (Hale 2010; Basgall 1987), is a question that demands further attention. Answering it depends, in part, on establishing a solid understanding of the distribution of different kinds of oak trees in different parts of the region. For example, oak trees are rare or entirely absent from the landscape within about 10 kilometers of the coastline throughout the northern end of the California Bight (see Glassow 1996: 6). Where oak trees were scarce, mortars were used for processing other things or acorns were transported from considerable distance – a pattern well documented from other parts of California (Morgan 2007).

Land use patterns observed to the west, in the Vandenberg region (Lebow et al. 2006), suggest that these changes in resource use were accompanied by a shift in settlement patterns: though the shift to a logistical pattern of residence began around 3,000 years ago, it was fully in place throughout the Middle Period. If the patterns observed from the compilation of radiocarbon dates both from Vandenberg (Lebow et al. 2010; Lebow et al. 2011) and the surrounding region (Glassow 1996) can be used to evaluate change in human population, then the Middle Period is the first episode of measurable and sustained demographic increase in the history of the region, increasing noticeably approximately 2,800-1,800 years ago, and then dramatically after that. Thereafter, life across the Channel

on the islands starts to change markedly: the number of settlements starts to increase and people start to live in those settlements for longer periods of time while commanding more rigid territories and controlling the natural resources within them. At the same time, the incidence of inter-personal violence increases while human health and stature start to decline (Kennett 2005; Lambert and Walker 1991; Lambert 1997, 2002; Walker 1989). Together, these things mark the beginning of a trend that continues into the Late Period, where it intensifies dramatically. The extent to which these patterns occurred on the mainland and the adjacent interior, or how people in any given area were affected by the dramatic change on the islands, are open questions.

*The Late Period: 800 BP – European Colonization (ca. A.D. 1780)*

For most of this periodization, the exact starting and ending dates are mostly inconsequential, but the Late Period is different, in part because the bead-based chronology is more precise, the archaeological record is better preserved, the change in that record is more pronounced, and the change in the cultural record seems to match dramatic change in well-dated, high-resolution paleo-environmental archives from the Santa Barbara Basin that are also reflected in written records from other parts of the world (Kennett and Kennett 2000; Kennett 2005; Raab and Larson 1997; Jones and Kennett 1999; Arnold, Colten, and Pletka 1997). Setting it at 800 BP follows King's (1990) bead-based chronology and includes the period of dramatic environmental change (ca. 800-650 BP) along with its purported role in rapid Late Period cultural change. However, one could easily define this cultural period by everything that happens after that environmental change, as Arnold (1992) does, or alternatively by putting it at 1,300 BP – the beginning of Lebow and Moratto's (2005) Late Middle Period – by which time many of the material hallmarks of Late Period cultural complexity (the sewn-plank canoe, the bow and arrow, exotic raw materials, intensive fishing, standardized Olivella shell beads, status differentiation, skeletal evidence for interpersonal violence, stable primary villages) were all in place, and the pace of cultural change began to increase (Kennett 2005).

Hale (2010) argues that the rate-limiting factors on cultural evolution are socioeconomic, rather than techno-environmental. Therefore, the archaeological signatures of culture change (namely, the types and uses of artifacts, including food remains) that appear to be more rapid during the Late Period are more important when viewed in the light of major socioeconomic shifts, rather than seeing them simply as a rapid accumulation of variability. More to the point, a time-limited strategy would actively resist change, while an energy-limited strategy would actively pursue it and would accumulate material representation in the archaeological record accordingly simply through technological improvements to make tools more efficient or specialized, and in specialized subsistence (Bettinger 1999). The causal relationship between the archaeologically visible increase in material diversity over shorter periods of time and socioeconomic strategy (i.e., time- or energy-limited) on the one hand, or demographic increase on the other, merits further investigation throughout the region (particularly at sites with rich artifact assemblages).

Since the mid-1980s, an enormous body of literature has accumulated on the origins of cultural, social, and political complexity in the Santa Barbara Channel. Much of this has been dedicated to the Late Period, and most of that has been done on the islands. The archaeology of this is spectacular and dovetails dramatically with the written accounts of

European explorers, Mission colonists, and 20th century ethnographers. In addition to basic archaeological reconnaissance, there has been focused attention on understanding subsistence (e.g., Bernard 2004; Martin and Popper 2001), the context of shell bead money production (Arnold and Munns 1994), the production of tools (i.e., microlithic drills) used to manufacture that money (Arnold 1987, 2001), the differential access to exotic goods (Arnold and Graesch 2001), the presence of trade centers (Arnold 2001; Gamble 2008), the production and control of sea-worthy watercraft (Gamble 2002; Arnold 1995), and established patterns of exchange (Arnold 1995; Fauvelle 2011).

By 650 BP, the full suite of attributes that early European chroniclers noticed of the Chumash were in place on the islands: sedentary villages of permanent semi-subterranean architecture, high dietary diversity that also included prestige items like pelagic fish, a monetized market economy, specialized craft production, inter-village and island-mainland exchange networks, political control of natural resources, numerous forms of personal adornment, and an unequal distribution of wealth. Presumably, these things also index the social order documented of the Chumash, including elite offices, formal religious systems, hereditary power and prestige (i.e., the “Dynasty of Nobility”), a ranked social order, institutional inequality, and chiefly control (e.g., Blackburn 1976; Gamble 2008; Harrington 1942; Hollimon 2004; Johnson 1988).

***Regulatory Setting:***

Under CEQA, a project may have a significant effect on the environment if it may cause “a substantial adverse change in the significance of an historical resource” [California PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)]. If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources or identified as significant in a historical resources survey [meeting the requirements of California PRC Section 5024.1(q)], it is a “historical resource” and is presumed to be historically or culturally significant for purposes of CEQA [California PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)]. The lead agency is not precluded from determining that a resource is a historical resource even if it does not fall within this presumption [California PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)].

A “substantial adverse change in the significance of an historical resource” reflecting a significant effect under CEQA means “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” [CEQA Guidelines Section 15064.5(b)(1); California PRC Section 5020.1(q)]. In turn, the significance of a historical resource is materially impaired when a project:

*(A) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or*

*(B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of section*

*5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or*

*(C) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA.*

When a project significantly affects a unique archeological resource, CEQA imposes special mitigation requirements. Specifically, “[i]f it can be demonstrated that a project will cause damage to a unique archeological resource, the lead agency may require reasonable efforts to be made to permit any or all of these resources to be preserved in place or left in an undisturbed state” [California PRC Section 21083.2(b)(1)-(4)]. Examples of that treatment include the following [California PRC Section 21083.2(b)(1)-(4)]:

- (1) Planning construction to avoid archeological sites.*
- (2) Deeding archeological sites into permanent conservation easements.*
- (3) Capping or covering archeological sites with a layer of soil before building on the sites.*
- (4) Planning parks, greenspace, or other open space to incorporate archeological sites.*

If these “preservation in place” options are not feasible, mitigation may be accomplished through data recovery [California PRC Section 21083.2(d); CEQA Guidelines Section 15126.4(b)(3)(C)]. PRC Section 21083.2(d) states that “[e]xcavation as mitigation shall be restricted to those parts of the unique archeological resource that would be damaged or destroyed by the project. Excavation as mitigation shall not be required for a unique archeological resource if the lead agency determines that testing or studies already completed have adequately recovered the scientifically consequential information from and about the resource, if this determination is documented in the environmental impact report.” These same statutes apply to Tribal Cultural Resources under CEQA, including data recovery as a recommended form of mitigation when avoidance is not feasible.

***Methodology:***

***CHRIS Records Search***

On February 19, 2019, Dudek conducted a search of the California Historical Resources Information System (CHRIS) at the Central Coast Information Center (CCIC), located on the campus of UCSB. The search included any previously recorded cultural resources and investigations within a 0.5-mile radius of the Project area. The CHRIS search also included a review of the NRHP, the CRHR, the California Points of Historical Interest list, the California Historical Landmarks list, the Archaeological Determinations of Eligibility list, and the California State Historic Resources Inventory list. Confidential Appendix D provides the records search results maps and a complete bibliography of all prior cultural resources studies occurring within 0.5 miles of the Project area.



### *Historical Aerials Review*

Aerial images from years 1928, 1938, 1941, 1944, 1956, 1971, 1986, 1992, 2001, 2010, and 2018 (UCSB 2020) were carefully reviewed to better understand land use and previous ground disturbing activities.

### *Pedestrian Survey*

The intensive-level survey methods consisted of a pedestrian survey conducted in parallel transects, spaced no more than 3 meters apart (approximately 10 feet), where feasible. The ground surface was inspected for prehistoric artifacts (e.g., flaked stone tools, tool-making debris, groundstone tools, ceramics, fire-affected rock), soil discoloration that might indicate the presence of a cultural midden, soil depressions, features indicative of structures and/or buildings (e.g., standing exterior walls, post holes, foundations), and historical artifacts (e.g., metal, glass, ceramics, building materials). Ground disturbances such as burrows, dirt paths, and landscape beds were also visually inspected for exposed subsurface materials. No artifacts were collected during the survey.

All fieldwork was documented using field notes and an Apple Generation 7 iPad equipped with ESRI Collector and Avenza PDF Maps software with close-scale georeferenced field maps of the proposed Project site, along with aerial photographs. Location-specific photographs were taken using the iPad's 12-megapixel resolution camera. Accuracy of the mapping software on the iPad ranged between 4 and 5 meters. All field notes, photographs, and records related to the current study are on file on Dudek's protected server. All field practices met the Secretary of Interior's standards and guidelines for a cultural resources inventory.

### *Previously Recorded Cultural Resources*

The CCIC records indicated that no cultural resources have been previously recorded within the Project site and 24 cultural resources have been previously recorded within the 0.125-mile radius of the Project site, all of which are historic resources; no prehistoric resources have been previously identified within the search radius. Of the historic resources, five are historic archaeological sites identified by subsurface deposits and 19 are extant historic structures.

The CCIC records indicate that one previously recorded cultural resource, CA-SBA-46, has been identified within the Project site and 19 cultural resources have been previously recorded within the 0.5-mile radius of the Project site (see Table 3-9). Of the 19 cultural resources, 12 are prehistoric cultural resources and seven are historic built resources. The 12 prehistoric archaeological sites are briefly described below, followed by a table summarizing all previously recorded cultural resources within 0.5 miles of the Project site.

CA-SBA-43 is a prehistoric site measuring approximately 233 meters (764 feet) north to south and 412 meters (1,351 feet) east to west at an elevation of 80-90 feet above mean sea level (AMSL) and is located approximately 520 meters (1,700 feet) southeast of the proposed Project area. CA-SBA-43 is documented as consisting of high-density shell midden, high-density and diverse lithic assemblage (including Monterey and Franciscan cherts, crude projectile points, bifaces), mortar and pestle fragments, asphaltum-covered stones, drill, fire affected rock, and potentially a cemetery area. The site was originally

recorded formally by David Banks Rogers in his book *Prehistoric Man of Santa Barbara Coast* (1929) as a collection of three “great rancheria sites” located on the flat top of the extensive mesa east of the Goleta Slough. Larry Wilcoxon and Jon Erlandson recorded the site in 1981 after a pedestrian survey and noted that a “cluster of broken mortars at the NE midden edge may mark a cemetery although no human remains were observed.”

CA-SBA-44 is a prehistoric site measuring approximately 206 meters (676 feet) north to south and 251 meters (824 feet) east to west at an elevation of 60 feet AMSL and is located approximately 1,140 meters (3,740 feet) southeast of the proposed Project area. CA-SBA-44 is documented as consisting of high-density shell midden, utilized Monterey chert flakes and blade fragment, bowl frag, mano, fossilized whale bone and isolated human remains. The site was originally formally recorded by David Banks Rogers in his book *Prehistoric Man of Santa Barbara Coast* (1929) as a collection of three “great rancheria sites” located on the flat top of the extensive mesa east of the Goleta Slough. A second recording of the site was completed by Joseph Chartkoff, Kerry Chartkoff and L. Kona; however, the record appears to have been done based on research, since the site record includes a comment “access to site could not be gained.” Jon Erlandson and Larry Wilcoxon recorded the site in 1981 after a pedestrian survey and described the site as “a large and high density shell midden containing human remains.” Erlandson and Wilcoxon provided comment in the site record that the site had reportedly been “extensively surface-collected for years.”

CA-SBA-45 is a prehistoric site measuring approximately 305 meters (1,000 feet) northwest to southeast and 61 meters (200 feet) northeast to southwest at an elevation of 5 feet AMSL and is located approximately 210 meters (690 feet) southeast of the proposed Project area. CA-SBA-45 is documented as consisting of dense shell and bone midden, chipped stone artifacts, including flakes and projectile points, ground stone, including pestles and “rubbingstone”, tarring pebbles, asphaltum, burnt bone, bone tools, fishhooks, and human remains. The site was originally formally recorded by David Banks Rogers in his book *Prehistoric Man of Santa Barbara Coast* (1929), in which he refers to the site as “Twin Mounds” and describes the site as “two small, closely adjacent mounds” located on the floor of the Goleta Slough and displaying “upon their surface the sooty soil, rich in fragments of shell, which indicates former occupancy.” Based on extensive excavations conducted in 1927 by Olson and Hill of the University of California as well as his own, Rogers noted that the site showed evidence of a long and continuous village settlement. Subsequent recordings of the site were completed by Joseph Chartkoff, Kerry Chartkoff, and L. Kona in 1967 with concerns of potential destruction due to channel construction; Jon Erlandson and Joseph Heinzen in 1978; Larry Wilcoxon and Jon Erlandson in 1981 based on presence of charcoal lenses and remains of three individuals eroding from the stream bank; and Larry Wilcoxon and Michael Imwalle in 1991 as the result of conditions observed during a pedestrian survey conducted for a water pipeline project. Portions of the site are thought to have been destroyed by the construction of the Ward Memorial Boulevard (SH 217) in 1964 and consistent disturbance of the site has been documented to occur as a result of natural flooding and channeling of Atascadero Creek.

CA-SBA-46 is a large, rich archaeological site with both historic and prehistoric components. It sits on a large mound, itself a remnant of Mescalitan Island, formerly an island in Goleta Lagoon. Prior to the infilling of the Lagoon during the 19th century and prior to 20th century grading, Mescalitan Island was approximately 0.35 square kilometers

(3,767,369 square feet), 21 meters (69 feet) above the slough, and accessible only by boat (Glassow et al. 1986; Gamble 2008). CA-SBA-46 is approximately 457 meters (1,500 feet) north to south and 305 meters (1,000 feet) east to west at an elevation of 25-70 feet AMSL and overlaps the proposed Project area. The site is considered to be the location of the ethnohistoric village of Helo', which was occupied continuously from the Middle Period through the historic era for approximately 2,000 years (Gamble 2020).

The site was first committed to written record by the Cabrillo expedition of 1542 under the name "Gua", and then again in 1769 by Friar Crespi of the Portolá expedition, who was taken by the sheer number of inhabitants (which he listed as between 600 and 800 individuals). The Portolá expedition is also responsible for naming the island Mescalitan, which is a derivation of the Aztec Mescaltitán, after an island in Mescaltitán Lagoon in Nayarit, Mexico. The village of Helo' is mentioned regularly in mission records from Santa Barbara.

Aside from looters and curiosity hunters, the first known excavation was conducted in 1875 by Yarrow under the auspices of the Smithsonian Institution. Though Rogers did not excavate at this site, it features prominently in his compendium, *Prehistoric Man of Santa Barbara Coast* (1929). Olson conducted an extensive excavation in the 1920s of three cemeteries and some middens; the collections from these excavations are housed at the Phoebe Hearst Museum in Berkeley, California. From 1932-33, Richard van Valkenburgh (of the Los Angeles County Museum of Natural History) excavated there, and from 1939-46, Phil Orr (Santa Barbara Museum of Natural History) did as well. Since 1959, students and faculty from UCSB (including James Deetz and Claude Warren) have conducted small-scale excavations on a somewhat regular basis; sadly, the results of these efforts have mostly escaped publication.

The most comprehensive, scientific studies of the historic portion of the site, affiliated with the village Helo', were conducted in the 1970s and 80s when GSD, which runs the sewage treatment plant on the northern end of the site, wanted to expand their facilities into the historic portion of the site. According to Lynn Gamble (who excavated there in 1986 and 1987 while at UCSB), the historic portion of the site was 80% undisturbed prior to expansion of the sanitation facilities in 1987. As part of the proposed expansion, Scientific Resource Surveys (SRS) conducted an assessment in 1978, and in 1985 excavated 37 1-meter by 1-meter units. Over the next couple of years, Gamble conducted a detailed excavation of two historic era house floors in this part of the site, providing a rare glimpse of Chumash domestic life prior to and during the establishment of both the Presidio and the Mission (Gamble 1991, 2008, 2020).

In 1981, Wilcoxon and Erlandson noted a "continuing loss to erosion and illicit collection," and estimated that 50% of the original island had been removed for fill and that 50-60% of CA-SBA-46 had been destroyed. Much of the site was destroyed to provide fill for development of Ward Boulevard on its east side. Much of the rest of the entire island was graded into the Slough as fill for the airport.

The site has produced a large and diverse range of features and artifacts, such as fire hearths, caches, points, pendants, beads, flakes, charmstones, and net-weights. Chartkoff, Chartkoff, and Kona (1967) described it as "very rich." Famously, and regrettably, one of the burials from CA-SBA-046 excavated by Orr in 1943 was on display at the Santa

Barbara Museum of Natural History, and widely known locally as the “Queen of Mescalitan Island.” The site is also famous for an unusually large “bathtub” mortar decorated with beads, an abalone shell dish full of unburned red maids seeds, and a small model of a canoe carved from steatite. The historic portion of the site also produced an abundance of organic implements (like soap-root brushes, redwood planks, and even a full-size redwood canoe) that do not typically preserve in older sediments.

There are eight documented cemeteries across three localities at the site. Many of the early 20th century observers (e.g., Olson and Orr) noted that human remains, and fragments thereof, were often visible on the surface. Though illicit looting was still a problem in the early 1980s, and may still be today, the effects of it on the stability and integrity of the site have not been evaluated recently.

CA-SBA-47 is a prehistoric site measuring approximately 60 meters (197 feet) in diameter at an elevation of 45 feet AMSL and is located approximately 735 meters (2,410 feet) southwest of the proposed Project area. CA-SBA-47 is described as a “large shell midden occupation site on top of bluff overlooking both Goleta Slough and Pacific Ocean,” near the east gate to the UCSB campus. The site was originally tested and reported by David Banks Rogers in his book *Prehistoric Man of Santa Barbara Coast* (1929). By December of 1948, Francis Riddell noted that the “site is all but totally destroyed.” In 1967, Chartkoff, Chartkoff, and Kona noted that the site had been “leveled for campus construction.” Since 1948, reports suggest that the cultural deposit is only about 1 foot deep.

CA-SBA-48 is a prehistoric site measuring approximately 100 meters (328 feet) north to south and 350 meters (1,150 feet) west-northwest to east-southeast at an elevation of 40 feet AMSL and is located approximately 845 meters (2,770 feet) southwest of the proposed Project area. CA-SBA-48 is a prehistoric shell midden on the northeastern edge of the UCSB campus, overlooking Goleta Slough. Faunal remains (shell and bone) at this location have been preserved and have recently been subject to absolute dating to reveal “an initial occupation around 820-1210 B.C., corresponding to the late Early Period and, after a hiatus of roughly 2,250 years, a second occupation during the late Late Period, around A.D. 1435-1660” (CA-SBA-48 Site Record). The site was originally reported by David Banks Rogers in his book *Prehistoric Man of Santa Barbara Coast* (1929). Tournapulls conducted a salvage excavation concurrent with heavy grading in 1941. This effort produced manos and metates (milling stones), as well as mortars and pestles, and also suggests there may have been two or more cultural components: one associated with the Canalño as described by Rogers, and the other in a lower component containing mineralized, flexed burials perhaps associated with the earlier Oak grove or hunting cultures. Tournapulls further notes that the burials could not be properly studied or preserved as they were typically destroyed by the “Bull Dosers.” Fenenga followed up with a small excavation in 1948, noting a hammerstone, a chopper, a small steatite bead, and flaked stone on Monterey and Franciscan cherts. Fenenga further reported that there were “numerous human bones on the surface” in 1948 and noted that CA-SBA-048 was “probably the best remaining site on the campus.” Chartkoff, Chartkoff, and Kona re-recorded the site in 1967, and Glassow conducted a condition assessment in 1973. Larry Wilcoxon and Jon Erlandson evaluated the site in 1981 after a pedestrian survey and noted that “large portions [of it had been] damaged or destroyed,” presumably during grading. Applied Earthworks conducted the most comprehensive subsurface evaluation as part of the California Nanosystem Institute

project (McKim et al. 2007); this study established a faunal record for the site, along with an outline of the timing of the different occupations.

CA-SBA-1158 is a prehistoric site measuring approximately 4,283 square meters (46,101 square feet) at an elevation of 5-10 feet AMSL and is located approximately 570 meters (1,870 feet) south of the proposed Project area. CA-SBA-1158 is documented as consisting of a medium density shell, bone, and lithic scatter and was originally formally recorded in 1980 by Jon Erlandson, who described the site as a “a shell, bone and lithic scatter of unknown dimensions.” Erlandson also provided comments regarding the site corresponding to “Pantoja’s 1782 map location of Chumash house clusters on the Goleta sandspit.” Subsurface testing was conducted in 1986 by Michael Macko to better understand the nature and horizontal and vertical extent of the site, from which Macko made the determination that the cultural material had been redeposited and did not exist within intact, native soils. The site record was not updated by Macko, but a note was added to the site record referencing Macko’s 1986 report (SR-00171).

**Table 3-9: Previously Recorded Cultural Resources within 0.5 Miles of Project Area**

Designation	Resource Description	Recorded By	NRHP Eligibility	Intersects Project Site?	Distance/ Direction from Project Site
CA-SBA-000043 (P-42-000043)	Prehistoric midden site consisting of marine shell midden and high-density lithic scatter.	1929 (David B. Rogers); 1981 (L. Wilcoxon/ J. Erlandson)	Unknown	No	520 meters (1,700 feet) southeast
CA-SBA-000044 (P-42-000044)	Prehistoric site consisting of marine shell midden, low-density lithic scatter, and two isolate human remain fragments.	1929 (David B. Rogers); 1967 (J. Chartkoff, K. Chartkoff, L. Kona); 1981 (Erlandson/ Wilcoxon)	Unknown	No	1,140 meters (3,740 feet) southeast
CA-SBA-000045 (P-42-000045)	Prehistoric midden site consisting of marine shell midden, low-density lithic scatter, and faunal bones.	1927 (David B. Rogers); 1967 (J & K Chartkoff/L. Kona); 1978 (Erlandson, Heinzen); 1981 (L. Wincoxon, J. Erlandson); 1991 (L. Wilcoxon, Mike Imwalle)	Unknown	No	210 meters (690 feet) southeast

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Designation	Resource Description	Recorded By	NRHP Eligibility	Intersects Project Site?	Distance/ Direction from Project Site
CA-SBA-000046 (P-42-000046)	Prehistoric site location of Mescalitan Island, consisting of marine shell midden, high-density lithic scatter, and various burials, including the "Queen of Mescalitan."	1928 (David B. Rogers); 1962 (Klug); 1967 (J & K Chartkoff, L. Kona); 1981 (Erlandson/Wilcoxon)	Unknown	Yes	within
CA-SBA-000047 (P-42-000047)	Prehistoric site consisting of marine shell midden.	1929 (David B. Rogers); 1948 (FA Riddell); 1967 (L. Kona/J. & K. Chartkoff)	Unknown	No	735 meters (2,410 feet) southwest
CA_SBA-000048 (P-42-000048)	Prehistoric site including marine shell midden, high-density lithic scatter, faunal bones, and various fragments of human remains.	1929 (David B. Rogers); 1948 (F. Fenenga); 1967 (J & K Chartkoff/ L. Kona); 1981 (Erlandson/Wilcoxon); 2007 (Lebow, C. Applied EarthWorks, Inc.)	Unknown	No	845 meters (2,770 feet) southwest
CA-SBA-001158 (P-42-001158)	Prehistoric site consisting of marine shell midden, low-density lithic scatter, and small faunal bone fragments.	1980 (Jon Erlandson)	Unknown	No	570 meters (1,870 feet) south
CA-SBA-001695 (P-42-001695)	Prehistoric site consisting of marine shell midden.	1981 (Erlandson/Wilcoxon)	Unknown	No	747 meters (2,450 feet) south

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Designation	Resource Description	Recorded By	NRHP Eligibility	Intersects Project Site?	Distance/ Direction from Project Site
CA-SBA-001696 (P-42-001696)	Prehistoric site including marine shell midden, low-density lithic scatter, and faunal bone.	1981 (Erlandson/Wilcoxon)	Unknown	No	1,085 meters (3,560 feet) southeast
CA-SBA-002579 (P-42-002579)	Prehistoric site consisting of low-density lithic scatter and marine shell midden with small amounts of faunal bone.	1993 (Roy Dugger, SAIC)	Unknown	No	570 meters (1,870 feet) north
CA-SBA-4010 (P-42-004010)	Prehistoric site including marine shell midden and a few lithic isolates.	2011 (Phil Fulton, Terri Fulton, LSA Associates, Inc.)	Unknown	No	378 meters (1,240 feet) southeast
(P-42-038785)	Prehistoric isolate quartzite core.	2006 (M. Armstrong, URS)	Unknown	No	908 meters (2,980 feet) northeast
(P-42-041030)	Historic building served as an airplane hangar during World War II, dating to 1942-1946.	1994 (Mitch Stone and Judith Triem, San Buenaventura Research Associates); 2014 (Morlet, A. Applied EarthWorks, Inc.)	Ineligible	No	152 meters (500 feet) west
(P-42-041041)	Historic building serving as storage during World War II, dating to 1944.	1994 (Mitch Stone and Judith Triem, San Buenaventura Research Associates)	Ineligible	No	152 meters (500 feet) west
(P-42-041042)	Historic building serving as storage during World War II, dating to 1944.	1994 (Mitch Stone and Judith Triem, San Buenaventura Research Associates)	Ineligible	No	152 meters (500 feet) west

Designation	Resource Description	Recorded By	NRHP Eligibility	Intersects Project Site?	Distance/ Direction from Project Site
(P-42-041043)	Historic building serving as a firehouse and armory during World War II, dating to 1944.	1994 (Mitch Stone and Judith Triem, San Buenaventura Research Associates)	Ineligible	No	183 meters (600 feet) northwest
(P-42-041044)	Historic airplane hangar dated to approximately 1960.	1994 (Mitch Stone and Judith Triem, San Buenaventura Research Associates)	Ineligible	No	137 meters (450 feet) west
(P-42-041057)	Historic building dated to approximately 1970.	1994 (Mitch Stone and Judith Triem)	Ineligible	No	670 meters (2,200 feet) north
(P-42-041093)	Historic motel dating to approximately 1965.	1994 (Mitch Stone and Judith Triem, San Buenaventura Research Associates)	Ineligible	No	580 meters (1,900 feet) south

*Previous Cultural Resources Studies*

Results of the CHRIS search indicate that 94 previously conducted studies were identified within the 0.5-mile records search radius between 1979 and 2017. Of these studies, 13 overlap the current Project area: SR-00153, SR-00183, SR-00194, SR-00218, SR-00779, SR-00929, SR-01068, SR-01070, SR-01435, SR-01600, SR-01601, SR-04892 and SR-04911 (see Table 3-10). The previous cultural resource studies addressing the proposed Project site area that were available and considered relevant are briefly explained below, and all previous cultural resource studies within the 0.5-mile radius are summarized in Table 3-10.

SR-00183 Final Supplemental Environmental Impact Report for the Goleta Sanitary District Wastewater Treatment Plant Upgrade (Planning Land Use Services 1986) documents a supplemental effort for an EIR overlapping all of the proposed Project site. The purpose of the EIR was to determine any potentially significant effects upgrades to the wastewater treatment facility would have on the environment, in accordance with CEQA. The archaeological component of the supplemental EIR included a review of previous studies covering the project area. The supplemental EIR found that the project would have significant impacts to cultural resource CA-SBA-46. Recommended Mitigation Measures included avoiding impacts whenever possible, controlled use of a backhoe, and monitoring of all excavation activities by archaeological and Native American consultants.



SR-00929 Archaeological investigations at Helo' on Mescalitan Island (Gamble 1990) documents excavations that took place throughout the current proposed Project site. The purpose of the investigations was to mitigate the impacts of the proposed expansion of the wastewater facility on prehistoric site CA-SBA-46. The investigation included the excavation of 35 units. The excavation revealed high cultural deposits, including two house floors, suggesting CA-SBA-46 was a village site. One of the more significant results of the archaeological investigation was the conclusion that site CA-SBA-46 is the Chumash village Helo'.

SR-01068 Cultural Resources Investigation of Proposed Modifications to Wastewater Facility and Associated Pipeline for Distribution of Reclaimed Water (Cultural Resources Management Services 1990) documents the results of a Phase I archaeological investigation overlapping a portion of the current proposed Project site. The investigation included a records search, a literature review, and an intensive field survey. The purpose of the investigation was to determine if proposed modifications to the wastewater facility and associated distribution pipeline would impact cultural resources. The records search showed that GSD's wastewater facility resided over previously recorded archaeological site CA-SBA-46. The field survey within the wastewater facility identified several prehistoric chert flakes. The investigation concluded the proposed Project area, which overlaps the current proposed Project site, had been highly disturbed, and subsurface test excavations were recommended to determine if a significant cultural deposit remained within the proposed Project site. Archaeological and Native American monitoring was also recommended for all ground disturbing activities.

SR-01435 A Limited Subsurface Testing Program at the site of a Proposed Vehicle Garage at the Goleta Sanitation District's Wastewater Treatment Plant, Goleta, California (Wilcox 1991) documents subsurface testing that took place within the northern edge of the proposed Project site. The subsurface testing included eight backhoe trenches excavated to depths between 1.58 and 3.05 meters (5.18 and 10 feet). The purpose of the testing was to determine the extent of prerecorded archaeological site CA-SBA-46 within the proposed Project site. The subsurface testing resulted in an intact cultural deposit, associated with CA-SBA-46, within every trench, predominantly within native topsoil that had been previously capped with fill. Wilcox recommended that prior to construction activities, there be a recovery of a 3% sample of intact cultural deposits, and all ground disturbing construction activities be monitored by an archaeologist and Native American representative.

SR-01600 Limited Subsurface Testing at Goleta Sanitations District's Wastewater Treatment Facility (Wilcox 1991) documents subsurface testing that took place within the current proposed Project site. The subsurface testing included six backhoe trenches excavated to depths between 1.3 and 2.9 meters (4.27 and 9.51 feet). The purpose of the testing was to determine the extent of prerecorded archaeological site CA-SBA-46 within the then proposed Project site. The results of the subsurface testing showed that the native topsoil where cultural remains were located had been significantly cut and disturbed by past grading. It was determined unlikely that undisturbed high-density deposits existed within the proposed areas of construction. Archaeological monitoring during construction activities was recommended as a form of mitigation.

SR-01601 Surface Reconnaissance Goleta Sanitation District Wastewater Treatment Plant (Wilcoxon 1991) documents the results of a pedestrian survey at the GSD wastewater facility, overlapping a portion of the current proposed Project site. The purpose of the survey was to determine if proposed paving and grading would impact in situ cultural deposits associated with prerecorded archaeological site CA-SBA-46. During the field survey, shell midden deposits were observed at varying densities within the proposed Project area. It was recommended to avoid the area east of the existing secondary sedimentation tanks and southwest of a 10-foot contour. The report states that any disturbance within this area would require further mitigation in accordance with the County of Santa Barbara guidelines and CEQA.

SR-04892 Extended Phase 1 Archaeological Investigation, Goleta Sanitary District Wastewater Treatment Plant Upgrading Project (Stone and Victorino 2009) documents the results of an extended Phase I archaeological investigation that overlapped center portions of the proposed Project site. The investigation included a records search, a literature review, and subsurface testing consisting of 34 geoprobes. The purpose of the investigation was to determine the integrity of any subsurface cultural materials and to determine the horizontal and vertical extent of cultural materials associated with prerecorded archaeological site CA-SBA-46 within then proposed improvement areas. The geoprobes resulted in identifying varying densities of cultural material. The area west of the existing biofilter contained little to no cultural materials. The area east and north of the existing biofilter contained higher densities of cultural material extending up to 6 feet deep. The study resulted in recommendations that proposed disturbances within areas of high densities of cultural material be redesigned or relocated to areas with little to no cultural material present. A pre-construction workshop conducted by an archaeologist and local Native American representative and archaeological and Native American monitoring during all ground disturbing activities were also recommended.

SR-04911 Letter Report for Archaeological Monitoring, Goleta Sanitary District (Victorino and Stone 2009) documents the results of archaeological monitoring within the center of the proposed Project site. The monitoring was required to fulfill conditions of approval for the proposed GSD Wastewater Treatment Plant Upgrading Project. Fragmented and weathered marine shell was observed in low densities during the archaeological monitoring. The cultural materials were observed in areas where previous disturbance had taken place and were not considered potentially significant. A map of previous disturbances and investigations of GSD can be found in Figure 3-2.

**Table 3-10: Previously Conducted Cultural Resources Studies Within 0.5 Miles of the Project Area**

Year	Author	CCIC ID	Report Title	Addresses Project Site
Not available	Desautels, R. and Leach, M.	SR-00065	No title listed within CHRIS	No
1979	Craig, S.	SR-00121	Cultural Resource Survey of the Proposed Minicar Corp. Development in Goleta, California (28 DP 35 log #2652)	No
1982	Craig, S.	SR-00130	Results of a cultural resource assessment of two potential City of Santa Barbara sludge composting facilities.	No
1983	Craig, S.	SR-00132	Cultural Resources Element Santa Barbara Municipal Airport Expansion.	No
1985	Erlandson, J.	SR-00147	RE: Proposed Developments, Goleta Sanitary District, Santa Barbara County, CA.	Yes
1948	Gabel, N. and Fenenga, F.	SR-00150	An Appraisal of the Archaeological Resources of the Goleta Campus of Santa Barbara College, University of California.	No
1975	Greenwood, R.	SR-00153	Archaeological Investigation Goleta Sanitary District Wastewater Treatment Plant Evaluation.	Yes
1975	Haller, J.	SR-00154	Goleta Slough Management Plan.	No
1986	Macko, M.	SR-00171	Results of Archaeological Testing at CA-SBa-1158, Goleta Beach Park.	No
1985	Moore, J.	SR-00178	Archaeological Monitoring and Preliminary Impacts Assessment, SBA-1158 Goleta Beach Park.	No
1985	Planning Division PS/CM	SR-00182	City of Santa Barbara Memorandum, Airport/Goleta Slough Local Coastal Plan, Phase III Implementation	No
1986	Planning Land Use Services (PLUS)	SR-00183	Final supplemental environmental impact report for the Goleta Sanitary District Wastewater Treatment Plant Upgrade.	Yes
1985	SRS	SR-00192	SBA-46 Test Program, Goleta Sanitary District / Brown & Caldwell, Vol. I, II, & III	Yes

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Year	Author	CCIC ID	Report Title	Addresses Project Site
1979	SRS	SR-00193	Archaeological Report Vol. II on Test Excavations on Site SBa-46 (Mescalitan Island) Located in Goleta, California-Data Presentation	Yes
1985	SRS	SR-00194	Research Design for Test Excavations on Mescalitan Island, Site III, SBA-46.	Yes
1983	Stone, D.	SR-00203	Phase I Archaeological Assessment for Fess Parker Fill Stockpiling Site	No
1969	UCSB, Office of Architects and Engineers	SR-00213	Ward Memorial Boulevard and the Goleta Slough.	No
1975	UCSB	SR-00214	UCSB Long Range Development Plan EIR: Archaeology Section.	No
1985	Whitney-Desautels, N.	SR-00218	Letter report: Response to peer review comments regarding test program conducted by SRS at SBa-46	Yes
1982	Wilcoxon, L., Erlandson, J., and Stone, D.	SR-00246	Final Report Intensive Cultural Resources Survey for the Goleta Flood Protection Program Santa Barbara County, California	No
1985	Erlandson, J.	SR-00779	Letter Report: Review of SRS Research Proposal for the Archaeological Evaluation of Proposed Goleta Sanitary District Developments on Mescalitan Island (SBA-46, Site III).	Yes
1990	Gamble, L.H.	SR-00929	Archaeological investigations at Helo' on Mescalitan Island	Yes
1991	Snethkamp, P.	SR-01063	Assessment for need for phase 1 prehistoric and historic archaeological survey of the parcel associated with the T-Hangars project at Santa Barbara Municipal Airport	No
1990	Gibson, R. and Parsons, J.	SR-01065	Results of subsurface testing for the Pine Avenue storage yards project: soils geomorphology and archaeology	No

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Year	Author	CCIC ID	Report Title	Addresses Project Site
1990	Cultural Resources Management Services	SR-01068	Cultural resources investigation of proposed modifications to wastewater facility and associated pipeline for distribution of reclaimed water	Yes
1991	Wilcoxon, L.	SR-01070	Results of a limited archaeological subsurface testing program at SBA-48 in conjunction with the Goleta Sanitation District's proposed reclaimed water pipeline network on the UCSB campus	No
1991	Wilcoxon, L.	SR-01181	A Supplemental Phase I Cultural Resource Evaluation for Selected Portions of Goleta Water District's Proposed Reclaimed Water Pipeline Network, Goleta, California	No
1991	Wilcoxon, L., Haley, B., and Imwalle, M.	SR-01186	Results of a Phase II Archaeological Subsurface Testing Program at SBA-48 in Conjunction with the Goleta Water District's Proposed Reclaimed Water Pipeline Network on the UCSB Campus	No
1991	Wilcoxon, L.	SR-01187	Letter Report: Proposed Airport Terminal Expansion, Santa Barbara Airport, Santa Barbara, California	No
1991	Wilcoxon, L.	SR-01188	Results of a Subsurface Backhoe Testing Program in Conjunction with Proposed UCSB Marine Science Trailer Utilities Near Archaeological Site SBA-48, on the University of California Campus	No
1992	Wilcoxon, L. and Imwalle, M.	SR-01231	A Phase I Cultural Resource Evaluation for the Proposed South Patterson Area Grower's Reclaimed Water Pipeline Network Goleta, California	No
1991	Wilcoxon, L.	SR-01435	A Limited Subsurface Testing Program at the site of a Proposed Vehicle Garage at the Goleta Sanitation District's Wastewater Treatment Plant, Goleta, California	Yes

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Year	Author	CCIC ID	Report Title	Addresses Project Site
1993	Wilcoxon, L. and Haley, B.	SR-01450	Final Report, Results of Archaeological Excavations at SBA-46 Undertaken in Conjunction with the Proposed Construction of a Vehicle Garage at the Goleta District's Sanitation Plant, Goleta, California	No
1992	Stone, D.	SR-01467	Re: Supplemental Phase I Resource Survey Proposed Apron Extension, Hangar Extension, and Access Road Lucus Aviation, Inc. Santa Barbara Airport	No
1991	Snethkamp, P.	SR-01473	Re: Phase I Cultural Resource Survey Proposed Apron Extension and Access Road Lucas Aviation Santa Barbara Airport, Santa Barbara, California	No
1992	Snethkamp, P.	SR-01474	Re: Assessment of Potential Effects to Archaeological Resources Proposed Airport Improvements Santa Barbara Municipal Airport AIP Project No. 3-06-0235-06; 3-06-0235-07	No
1993	Woodman, C. and Dugger, R.	SR-01495	Results of Archaeological Monitoring and Limited Testing, Santa Barbara Municipal Airport Property, City of Santa Barbara, California SAIC Job No. 01-0236-01-1324-000	No
1979	Craig, S.	SR-01528	Re: Heyer Schulte Corporation Parking Lot and Building Extension Goleta, California	No
1992	Snethkamp, P. and Cagle, C.	SR-01584	Phase 1 Archaeological Assessment Santa Barbara Municipal Airport Property, City of Santa Barbara, CA.	No
1991	Wilcoxon, L.	SR-01600	Limited Subsurface Testing at Goleta Sanitations District's Waste Water Treatment Facility	Yes
1991	Wilcoxon, L.	SR-01601	Surface Reconnaissance Goleta Sanitation District Waste Water Treatment Plant	Yes

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Year	Author	CCIC ID	Report Title	Addresses Project Site
1993	Wilcoxon, L.	SR-01642	A Phase I Archaeological Resource Evaluation for Santa Barbara County's Proposed Channel Modification and Maintenance Project on Lower Atascadero Creek, Goleta, California	No
1994	Snethkamp, P.	SR-01671	Letter Re: Revisions to the Airport's Cultural Resources Sensitivity Map, Phase 1 Archaeological Assessment, Santa Barbara Municipal Airport, City of Santa Barbara, California. Mescalitan Island Archaeological Sensitivity Area, South End of Airport.	No
1993	Snethkamp, P.	SR-01674	Cultural Resources Assessment Runway 7-25 Safety Area Improvements Santa Barbara Municipal Airport, Santa Barbara, CA.	No
1994	Snethkamp, P.	SR-01675	Cultural Resources Evaluation Hangar 6 Drainage Improvements Santa Barbara Municipal Airport, Santa Barbara, Ca	No
1994	Snethkamp, P.	SR-01679	Re: Proposed Improvements within Mescalitan Island Sensitivity Area	No
1993	Snethkamp, P.	SR-01702	Cultural Resource Evaluation, Taxiway B Reconstruction, Signage Installation, and Runway 151/33R Repavement, Santa Barbara Municipal Airport, Santa Barbara, CA	No
1967	Chartkoff, J.	SR-01746	Archaeological Resources on Fourteen Stream Channels in coastal Santa Barbara County, California	No
1978	Desautels, R.	SR-01749	Archaeological Surface and Inventory Report on the Goleta County Water District – Wastewater Reclamation Project Located in Santa Barbara County, Ca	No
1996	Santoro, Loren J.	SR-01948	Archaeological Monitoring for the Goleta Slough Dredging Project – Phase II, Santa Barbara County, CA	No

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Year	Author	CCIC ID	Report Title	Addresses Project Site
1997	Anderson, Karin	SR-02124	Phase 1 Archaeological Survey for Proposed Installation of Cable San Pedro Creek Bike Trail and Goleta Beach County Park, Santa Barbara, County, California	No
1988	King, Chester, Horne, S., Gamble, L., Wilcoxon, L., and Gibson, R.	SR-02127	Environmental Impact Report/Statement: Shell Hercules Project, Santa Barbara County, Technical Appendix G Cultural Resources	No
1975	Hannan, Joseph A.	SR-02142	Management and Preservation Plan for the Goleta Slough	No
1996	SAIC	SR-02187	Phase 1 Archaeological Survey for Elements of the Goleta Old Town Revitalization Plan	No
1997	Anderson, Karin	SR-02205	Phase 1 Archaeological Survey for Proposed Installation of Cable San Pedro Creek Bike Trail and Goleta Beach County Park, Santa Barbara County, California	No
2000	Anderson, Karin	SR-02523	Final Archaeological Monitoring Results for Santa Barbara Airport Safety Area Grading Project	No
1996	Anderson, Karin	SR-02524	Cultural Resources Survey for Santa Barbara Municipal Airport Safety Grading and Helicopter Parking Area Projects	No
2000	Applied Earth Works	SR-02541	Historic Property Survey Report for Goleta Old Town Transportation Improvements, Santa Barbara County, CA	No
2000	Palmer, K and Lebow, C.	SR-02652	Phase 1 Cultural Resources Survey for University of California, Santa Barbara Campus Sewer Renewal Project, Goleta, CA	No
2001	Santa Barbara County Flood Control and Water Conservation District	SR-02667	Draft Program Environmental Impact Report: Updated Routine Maintenance Program	No



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Year	Author	CCIC ID	Report Title	Addresses Project Site
2001	Dibble, D.S.	SR-02690	Records and Literature Search and Archaeological Survey for Proposed Old San Jose Creek Restoration Project	No
2002	Getchell, Barbie and Atwood, John	SR-02802	Cultural Resources Inventory for the Proposed Federal Aviation Administration Airport Surveillance Radar, Model 11 (ASR-11) to serve the Santa Barbara Municipal Airport, Santa Barbara County, California	No
2001	Hodges, C., and Owen, V.	SR-02893	Extended Phase 1 Cultural Resources Investigations near CA-SBA-48, University of California, Santa Barbara, Santa Barbara County, CA	No
2003	Gerber, Joyce	SR-03030	Extended Phase 1 Cultural Resources Survey for the Sempra Energy/SGG La Goleta Storage Field Well Site Project	No
2003	Stone, D. and Victorino, K.	SR-03039	Phase 1 Archaeological Investigation Report Fairview Corporate Center, Goleta, California	No
2004	Gerber, Joyce L.	SR-03234	Phase 1 Archaeological Survey Santa Barbara Airport Security Upgrade Project Santa Barbara, California	No
2003	Bass, Byron	SR-03276	Technical Report, Cultural Resources: Verhelle Bridge Replacement Project, Santa Barbara, CA	No
2003	Bass, Byron	SR-03285	Technical Report, Cultural Resources Testing Program: Verhelle Bridge Replacement Project, Santa Barbara, CA	No
1979	The Regents of the University of California	SR-03502	UCSB LRDP EIR	No
1990	EIP Associates	SR-03503	Final EIR Vol. 1-Revised Draft (June 1990)	No
2000	Ryan, C.	SR-03566	Historic Property Survey Report for Goleta Old Town Transportation Improvements, Santa Barbara County, California	No

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Year	Author	CCIC ID	Report Title	Addresses Project Site
2006	Ross-Hauer, JoEllen, Maxon, Patrick, and Underbrink, Susan	SR-03631	Results of Archaeological testing at Site CA-SBA-1695, Goleta Beach County Park, Santa Barbara County, California	No
2007	Haslouer, Leeann G.	SR-04284	Archaeological and Native American Monitoring of the Power Pole Replacement Excavations at the Sempra\SCG La Goleta Storage Field, Goleta, California	No
2008	Haslouer, Leeann G. and Lebow, Clayton G.	SR-04382	Supplemental Extended Phase 1 Survey Sempra Energy/Southern California Gas La Goleta New Storage Field and Pipeline Goleta, Santa Barbara County, California	No
2008	Haslouer, Leeann G. and Lebow, Clayton G.	SR-04395	Phase 1 Archaeological Resources Report New Waterline East of Landing Field Santa Barbara Airport, Santa Barbara Airport, Santa Barbara, CA	No
2008	Haslouer, Leeann G.	SR-04397	Archaeological Monitoring for the Airfield Safety Projects, Santa Barbara, California	No
2008	McKim, Rebecca L., Lebow, Clayton G., Baloian, Mary Clark, and Harro, Douglas R.	SR-04411	Archaeological Investigations at CA-SBA-48 for the California Nanosystems Institute University of California, Santa Barbara	No
2008	McKim, Rebecca L.	SR-04411	Appendices	No
2009	Enright, Erin A. and Haslouer, Leeann G.	SR-04437	Phase 1 Archaeological Resources Report, Storm Drains and Headwalls in San Pedro Creek, Santa Barbara Airport, Santa Barbara, California	No

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Year	Author	CCIC ID	Report Title	Addresses Project Site
2010	Janet Wolf	SR-04638	Santa Barbara County Flood Control and Water Conservation District Flood Control Maintenance Activities in the Goleta Slough, Draft Subsequent EIR SCH No. 2000031092	No
2009	Leftwich, Brent	SR-04704	Historic Property Survey Report for the Ekwil Street and Fowler Road Extensions Project	No
2008	Stone, David	SR-04721	Phase 1 Archaeological Investigation ATK Space Systems Group Building Addition, 600 Pine Avenue, Goleta, California	No
2009	Drennan, Trisha	SR-04826	An Archaeological Inventory Survey, San Jose Creek Capacity Improvement Project, in the City of Goleta, Santa Barbara County, California	No
2009	Haslouer, Leeann G., Snethkamp, Pandora, Lebow, Clayton G., and Munns, Ann M.	SR-04852	Master Archaeological Resources Assessment for the Santa Barbara Municipal Airport, Santa Barbara, California	No
2013	Haslouer, Leeann G. and Munns, Ann M.	SR-04886	Archaeological and Native American Monitoring of Soil Sampling for the La Goleta Natural Gas Storage Facility, Goleta, Santa Barbara County, California	No
2009	Stone, David and Victorino, Ken	SR-04892	Extended Phase 1 Archaeological Investigation, Goleta Sanitary District Wastewater Treatment Plant Upgrading Project	Yes
2010	David Stone	SR-04905	Archaeological Resources Assessment, Concrete Recycling Facility, 903, 905, 907, & 909 South Kellogg Avenue, City of Goleta, California	No
2009	Ken Victorino and David Stone	SR-04911	Letter Report for Archaeological Monitoring, Goleta Sanitary District	Yes

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
Goleta Sanitary District

Year	Author	CCIC ID	Report Title	Addresses Project Site
2012	David Stone and Ken Victorino	SR-04949	Extended Phase 1 Archaeological Investigation, Lund Industrial Park Project, Technology Drive, Goleta, California	No
2009	Conway, Thor	SR-05025	An Archaeological Surface Survey and Updated Records Search for the Goleta Slough Flood Control Dredging Project, Goleta, Santa Barbara County, California	No
2006	Donaldson, Milford Wayne	SR-05036	Re: Section 106 Consultation for Taxiway Bravo Alignment, Santa Barbara Airport, Santa Barbara, Santa Barbara County, CA	No
2013	Haslouer, Leeann G. and Munns, Ann M.	SR-05075	Archaeological and Native American Monitoring of Soil Sampling for the Goleta Natural Gas Storage Facility, Goleta, Santa Barbara County, California	No
2013	Erin A. Enright, Clayton G. Lebow, and Ann M. Munns	SR-05556	Extended Phase 1 Report CA-SBA-1158 (P-42-001158) State Route 217, PM 0.50 to PM 0.72 Goleta Beach County Park Managed Beach Retreat Project Santa Barbara County, California	No
2017	Eric S. Nocerino and Clayton G. Lebow	SR-05569	Monitoring Report for the Plains Pipeline, L.P. Refugio Incident Response Project, Santa Barbara and Ventura Counties, California	No
2015	David Stone and Ken Victorino	on file with Dudek	Phase III Mitigation Investigations CA-SBA-46 Goleta Sanitary District Wastewater Treatment Plant Upgrades	Yes

*Historical Aerials Review*

The 1928 historical aerial shows the proposed Project area as undeveloped and existing on the edge of the unmodified Goleta Slough. The Project area overlaps what was previously the complete Mescalitan Island. On the edge of the island, within the proposed Project site, is a thick row of trees outlining the island's border. In the northern portion of the island, there are two patches of agriculture in the approximate proposed Project site. A cleared path running north-south connects the agriculture to the southern portion of the island.

The 1938 historical aerial also shows the proposed Project area as undeveloped except for a cleared path running east-west to a cleared square within the southwestern half of the

proposed Project site. It is possible that the cleared square is a structure; however, the clarity of the photograph prevents confirmation. The current Santa Barbara Airport, located directly to the west of the proposed Project site, is shown as undeveloped in this photograph.

The 1941 historical aerial shows the same path from the 1938 aerial; however, the cleared square evident in the 1938 aerial is covered in vegetation. The slough surrounding the proposed Project site is no longer filled with water. To the west, a large portion of land, including the western half of the island, has been cleared for what will be the Santa Barbara Airport. The surface of the eastern half of the island, within the proposed Project area, appears to be disturbed.

The 1944 historical aerial (see Figure 3-2) shows the channeled San Pedro Creek running north-south on the eastern border of the proposed Project site. Moffett Place and James Fowler Road are shown on the western and northern borders of the proposed Project site. At the time that this photo was taken, construction was taking place in the northern portion of Mescalitan Island, near James Fowler Road, within the proposed Project site. A cleared road running parallel to Moffett Place slightly to the east extends down the entire west side of the proposed Project site.

The 1956 historical aerial shows a series of four trapezoidal water basins along San Pedro Creek, as well as various ancillary structures, associated with GSD, within the proposed Project site. A section of trees has been removed from the eastern edge of the island, just west of the water basins. The only portion of the cleared path that remains is the northern portion, connecting the water basins and ancillary structures to Moffett Place. There is another path within the proposed Project site connecting the structures to James Fowler Road; along this path, tanks and additional ancillary structures exist within the proposed Project site. The surface of the proposed Project area appears to be graded.

The 1965 historical aerial (see Figure 3-2) shows an additional two water basins within the proposed Project site north of the previous four basins. There are three added storage tanks of various sizes, as well as another ancillary structure, in the proposed Project site. The 1965 historical aerial shows an increase in surface disturbance within the southern portion of the Project site.

The 1971 historical aerial shows an additional two tanks in the proposed Project site. Due to the clarity of the photograph, it is difficult to discern any other significant changes to the proposed Project site.

The 1986 historical aerial depicts an additional ancillary structure within the proposed Project site and continued surface disturbance, possibly grading or disking.

The 1992 historical aerial shows additional ancillary structures within the southern portion of the proposed Project site. A structure in construction is shown within the southwestern corner of the proposed Project area. The previous six water basins have been combined into three. There are two additional tanks north of the central road in the proposed Project site. In line with the new tanks to the west is a new cluster of ancillary structures within the general proposed Project area.

**Figure 3-2: Previous Disturbance and Investigations of Goleta Sanitary District**



SOURCE: SRS 1985, HDR 2002, DigitalGlobe 2008, Orr 1943, Brown and Caldwell 1986, Dudek 2015, ORGIS 2017



**FIGURE 3-2**  
 Previous Disturbance and Investigations of Goleta Sanitary District  
 Goleta Sanitary District Biosolids and Energy Phase 1 Preliminary Design Project

The 2001 historical aerial shows an additional three ancillary structures, two along the southern edge and one along the central road within the proposed Project site. There appear to be newly planted trees surrounding most of the ancillary structures, the northernmost water basin, and the southern and eastern borders of the proposed Project site.

The 2010 and 2017 (see Figure 3-2) historical aerials show no significant change to the proposed Project site.

#### *Pedestrian Survey*

An intensive archaeological survey of the proposed Project area was completed on February 19, 2020, by Dudek Senior Archaeologist Heather McDaniel McDevitt, M.A., RPA. All exposed ground surfaces were walked in no less than 3-meter (10-foot) parallel transects. At the time of the survey, the proposed Project area was not yet determined, so a larger area than the current proposed Project area was surveyed. Boot scrapes were employed where needed to expose surface soils. Careful attention was given to barren ground, including at the base of trees, within dirt paths and landscape beds, and subsurface soils exposed by burrowing animals. The exposed soils under vegetation and within landscape beds accounted for approximately 30% of the proposed improvement area and provided very good to excellent ground surface visibility (80-100%). Areas developed with structures and pavement accounted for approximately 70% of the proposed improvement area and provided none to poor ground surface visibility (0-30%). A considerable amount of fragmented and weathered shell was observed in most areas, including exposed soils. No other cultural material, such as tools or lithic material, was observed within the proposed Project area.

#### ***Environmental Determination:***

- a) Cause substantial adverse change in the significance of a historical resource pursuant to §15064.5? and***
- b) Cause substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?***

Impact: Less Than Significant with Mitigation Incorporated

No structures meeting the criteria of a historical resource pursuant to Section 15064.5 are located within or immediately surrounding the proposed Project site. The proposed Project site exists within archaeological site CA-SBA-46, a site with both historic and prehistoric components and the location of the former Barbareño Chumash village Helo'. This site has been studied by archaeologists at length both prior to and after a large portion of the site was used to infill the Goleta slough in preparation for the then Navy airport (now Santa Barbara Municipal Airport). Despite the disturbance, intact cultural deposits have been identified in the last 80 years. Although not formally listed on either the California Register of Historic Resources or the National Register of Historic Resources, the site meets the criteria of historically or culturally significant pursuant to PRC Section 5024.1(g). Based on the proposed ground disturbing activities, the Project would cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, as the proposed activities would materially alter in an adverse manner those physical characteristics of the historical resource that convey its eligibility for inclusion in the

California Register of Historical Resources. Previous archaeological testing and excavation efforts have identified intact deposits within the proposed Project's general area. Archaeological testing and excavations conducted in the past 30 years at CA-SBA-46 include a facility-wide significance evaluation undertaken in 1985 by SRS. The results of the survey identified the integrity and variability of remaining cultural deposits within CA-SBA-46 and categorized the variability into five density levels: Level I – 30,140.0 grams per cubic meter; Level II – 1,242.9 grams per cubic meter; Level III – 229.3 grams per cubic meter; Level IV – 34.1 grams per cubic meter; and Level V – no A Horizon present. Generally, the highest densities of shellfish, animal bone, stone tools, waste flake debitage, and stone tools were found in the southeastern corner of the GSD WRRF and extremely low densities in the western portion of GSD WRRF.

The proposed Project elements would all exist within the Level III density area with the exception of approximately 5% of the new Digester 4. During the preliminary design stage of the proposed Project, the new Digester 4 was minimized in its horizontal impact, resulting in it extending only slightly on its eastern boundary into the Level II density area. The proposed Project redesign would avoid the potential for disturbing areas of CA-SBA-46 with high diverse densities of cultural resources identified during the previous significance evaluation (SRS 1985) as well as the previous data recovery mitigation excavations conducted in the 1980s through 1990s. However, there still remains the possibility of encountering concentrations of cultural remains within areas of moderate, low, or no cultural materials, as well as inadvertently encountering isolated artifacts or human remains within previously disturbed soils. In the event that unanticipated archaeological resources are encountered during Project implementation, impacts to these resources could be potentially significant.

The mitigation measures identified in Section 3.5.3 have been created to minimize impacts to cultural resources to less than significant. Implementation of MM-CUL-1 would ensure data recovery in areas of high to moderate density and variability possessing data potential capable of providing information about the prehistoric and historic periods in this area; MM-CUL-2 would establish a program of treatment and mitigation in the case of an inadvertent discovery of cultural resources during ground-disturbing phases and would provide for the proper identification, evaluation, treatment, and protection of any cultural resources throughout the duration of the proposed Project; MM-CUL-3 would ensure the preparation and implementation of a Worker Environmental Awareness Program (WEAP); MM-CUL-4 would ensure that a qualified archaeologist is retained to monitor all initial ground disturbing activities and to respond to any inadvertent discoveries during Project construction; and MM-CUL-5 would ensure the proper treatment and protection of any inadvertent discovery of cultural resources, including human remains and burial artifacts, and that all construction work occurring within 50 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology, can evaluate the significance of the find. Thus, potentially significant impacts to archaeological resources would be reduced to less than significant levels with MM-CUL-1 through MM-CUL 5 incorporated.



***c) Disturb any human remains, including those interred outside of dedicated cemeteries?***

**Impact:** Less Than Significant with Mitigation Incorporated

No prehistoric or historic burials have been identified within the proposed Project site as a result of the CHRIS records search or pedestrian survey. However, considering the proposed Project is located within the archaeological site CA-SBA-46, the location of the former Barbareño Chumash village Helo', there is potential that an inadvertent discovery of human remains could occur. In the unexpected event that human remains are found, those remains would require proper treatment in accordance with applicable laws. Procedures of conduct following the discovery of human remains on non-federal lands are mandated by California Health and Safety Code Section 7050.5, PRC Section 5097.98, and 14 CCR Section 15064.5(e).

The mitigation measures identified in Section 3.5.3 have been created to minimize impacts to cultural resources to less than significant. Implementation of MM-CUL-2 would establish a program of treatment and protection in the case of an inadvertent discovery of human remains throughout the duration of the proposed Project; MM-CUL-3 would ensure the preparation and implementation of a WEAP to ensure all Project personnel are aware of the appropriate procedures and protocols they must follow in the event human remains are inadvertently discovered; MM-CUL-4 would ensure that a qualified archaeologist is retained to monitor all initial ground disturbing activities and to respond to any inadvertent discoveries during Project construction; and MM-CUL-5 would ensure the proper treatment and protection of any inadvertent discovery of human remains and burial artifacts. Thus, potentially significant impacts to archaeological resources would be reduced to less than significant levels with MM-CUL-1 through MM-CUL-5 incorporated.

***Cumulative Impacts:***

Cumulative impacts on cultural resources consider whether the impacts of the proposed Project together with other related projects identified within the vicinity of the Project site, when taken as a whole, substantially diminish the number of historic or archeological resources within the same or similar context or property type. Cumulative projects may require extensive excavation in culturally sensitive areas and thus may result in adverse effects to known or previously unknown inadvertently discovered archaeological resources. There is the potential for accidental discovery of other archaeological resources by the proposed Project, as well as by cumulative projects. Because all significant cultural resources are unique and non-renewable, all adverse effects or negative impacts contribute to a dwindling resource base. Through implementation of MM-CUL-1 through MM-CUL-5, the Project-level impact to archeological resources would be reduced to less than significant.

Other individual projects occurring in the vicinity of the Project site would also be subject to the same CEQA requirements as the proposed Project, and any impacts to archaeological resources would be mitigated, as applicable. These determinations would be made on a case-by-case basis, and the effects of cumulative development on historic and archaeological resources would be mitigated to the extent feasible in accordance with CEQA and other applicable legal requirements. Therefore, impacts on archaeological

resources would not be cumulatively considerable with mitigation incorporated (MM-CUL-1 through MM-CUL-5).

The proposed Project was determined to have less than significant direct impacts on human remains. MM-CUL-5 is adequate to address the potential for impacts due to the inadvertent discovery of human remains on the proposed Project site. Other individual projects occurring in the vicinity of the Project site would also be subject to the same State requirements to contact appropriate agencies and coordinate with the County Coroner. Therefore, the proposed Project would not result in any cumulatively considerable impacts related to human remains.

***Mitigation Measures:***

Refer to Section 3.5.3 to review the cultural resources mitigation measures. After implementation of Mitigation Measures MM-CUL-1 through MM-CUL-5, impacts to cultural resources during construction would be less than significant. No mitigation for cultural resources is required during operation.

**VI. Energy**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VI. Energy.</b> Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Existing Conditions:**

Currently, the site uses the biogas, which is combusted in a boiler that supplies heat to the digesters to aid in the digestion process, as well as the on-site buildings. Any biogas produced beyond what is needed to heat the digesters and buildings is flared. The building and other equipment on-site uses electricity and natural gas as needed.

**Environmental Determination:**

**a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy?**

Impact: No Impact

During Project construction, there is not expected to be significant use of gasoline or diesel compared to regional consumption. Back-calculating fuel usage from CalEEMod emissions leads to a combined usage of gasoline and diesel of between 19,200 and 22,400 total gallons of fuel, or between about 48 and 56 gallons per day. The range is because diesel and gasoline have different emission factors (8.78 vs. 10.21 kilograms CO<sub>2</sub> per gallon). This approach uses CalEEMod CO<sub>2</sub> emissions and CO<sub>2</sub> emission factors for gasoline and diesel from The Climate Registry Default Emission Factors (April 2020). The Santa Barbara County Association of Governments expects over 350,000 gallons of on-road fuel consumption per day in Santa Barbara County in 2020 per “Fast Forward 2040” (August 2017). This means that the fuel consumption for the Project represents 0.017% or less of the regional on-road fuel consumption. Additionally, none of the temporary construction energy usage should be considered wasteful, inefficient, or unnecessary.

During operation, the proposed Project will have a net benefit on energy resources because the CHP engine can generate 160 kW of electricity as well as heat from biogas, a renewable fuel, which is currently used in a boiler to generate heat or flared. As a result, the expected impact on energy resources is beneficial and does not waste energy resources.

***b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?***

Impact: No Impact

Since the Project is generating power from renewable sources (biogas), this Project will not conflict with or obstruct any State or local plans to generate energy efficiently or renewably. This Project is consistent with the California Energy Commission's Waste Heat and Carbon Emissions Reduction Act, as well as the Santa Barbara County Strategic Energy Plan, which specifically mentions biogas cogeneration (heat and power) as a way to sustainably produce power.

***Mitigation Measures:***

No mitigation is required.

**VII. Geology and Soils**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VII. Geology and Soils.</b> Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

***Existing Conditions:***

Geologic and soils information presented in this section is based, in part, on a project-specific Geotechnical Evaluation prepared by Ninyo & Moore (2021), included as Appendix A of this MND, and a paleontological records search through the Natural History Museum of Los Angeles County (LACM) (Appendix E).

***Faults***

The Project site is in a seismically active area, with numerous active faults in the region. Faults within 10 miles of the site include Mission Ridge, Red Mountain, North Channel, Pitas Point, and Santa Ynez. These faults are capable of maximum moment magnitudes of 6.8 to 7.4. The Project site is not within a State of California Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act. However, the site is in proximity to the More Ranch Fault Zone, part of the Mission Ridge Fault System, which is considered active by the County of Santa Barbara. The location of the More Ranch Fault is not consistent in various geologic publications. The City of Goleta Geologic Hazards Map (City of Goleta 2009) indicates the fault is immediately south of the Project site. Based on a site-specific evaluation of the surface rupture hazard by Earth Systems Pacific in 2009, no evidence of faulting was observed in the vicinity of the proposed digester and related facilities (Ninyo & Moore 2021).

***Geologic Formations***

Based on regional geologic maps and on-site borings, the Project site is underlain by fill and terrace deposits and at depth by the Monterey Formation. Fill material consisting of very loose to medium dense silty sand was encountered in borings to a depth of 8 feet below ground surface. Terrace deposits consisting of unconsolidated sandy soils, silty claystone, and silty sandstone were encountered to a depth of 63 feet. Monterey Formation bedrock consisting of clayey siltstone was encountered below the terrace deposits to the maximum depth drilled of 67 feet (Ninyo & Moore 2021).

***Liquefaction***

Liquefaction is a phenomenon that occurs when loosely consolidated soils lose their loadbearing capabilities during ground shaking and flow in a fluid-like manner. The specific soil condition conducive to liquefaction is loose sands and silty sands below the water table and typically within the upper 50 feet of the ground surface. The Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element (Santa Barbara County 2015) indicates the subject site is in an area of moderate liquefaction potential. However, based on the project-specific geotechnical investigation by Ninyo & Moore (2021), liquefaction is not a design consideration for the Project, based on the relatively shallow

depth to claystone and sandstone bedrock materials encountered during subsurface exploration. The Project site is on the northern flanks of Mescalitan Island, an area of shallow and exposed bedrock. The Santa Barbara County liquefaction hazard map is regional and generalized, whereas the Ninyo & Moore conclusion is based on site-specific borings. Consequently, the liquefaction potential is low at the Project site.

#### *Landslide*

Landslides generally occur on steep slopes that have been undercut by erosion or on slopes where the bedding planes of the bedrock are inclined down the slope. The topography of the Project site is relatively flat to gently sloping. Based on a site reconnaissance, review of published geologic maps, review of stereoscopic aerial photographs, and review of the City of Goleta Geologic Hazards Map (City of Goleta 2009), landslides are not considered to be a potential hazard at the site (Ninyo & Moore 2021).

#### *Collapsible Soils*

Based on borings drilled at the site, existing fill soils and terrace deposits are composed of granular soils that may be subject to caving (Ninyo & Moore 2021).

#### *Expansive Soils*

Expansive soils are those characterized as having a high shrink-swell potential, associated with a high percentage of clay content. The site-specific geotechnical report (Ninyo & Moore 2021) did not evaluate the potential for soil expansion, presumably because the soils are generally coarse grained (i.e., not clay rich). Consequently, soils with expansion potential are not anticipated at the Project site.

#### *Paleontological Resources*

Paleontological resources are the remains or traces of plants and animals that are preserved in the Earth's crust, and per the Society of Vertebrate Paleontology (SVP) guidelines (SVP 2010), are older than written history or older than approximately 5,500 years. They are limited, nonrenewable resources of scientific and educational value and are afforded protection under State laws and regulations.

#### ***Regulatory Setting:***

##### *Federal*

##### Occupational Safety and Health Administration Regulations

Excavation and trenching are among the most hazardous construction operations. The Occupational Safety and Health Administration (OSHA) Excavation and Trenching Standard, 29 CFR Part 1926, Subpart P, covers requirements for excavation and trenching operations. OSHA requires that all excavations in which employees could potentially be exposed to cave-ins be protected by sloping or benching the sides of the excavation, supporting the sides of the excavation, or placing a shield between the side of the excavation and the work area.

*State*

California Building Standards Code

The State regulations protecting structures from geo-seismic hazards are contained in the CBC (24 CCR Part 2), which is updated on a triennial basis. These regulations apply to public and private buildings in the State. Until January 1, 2008, the CBC was based on the then-current Uniform Building Code and contained additions, amendments, and repeals specific to building conditions and structural requirements of the State of California. The 2019 CBC, effective January 1, 2020, is based on the 2018 International Building Code and enhances the sections dealing with existing structures. Seismic-resistant construction design is required to meet more stringent technical standards than those set by previous versions of the CBC.

Chapters 16 and 16A of the 2019 CBC include structural design requirements governing seismically resistant construction, including (but not limited to) factors and coefficients used to establish seismic site class and seismic occupancy category for the soil/rock at the building location and the proposed building design. Chapters 18 and 18A include the requirements for foundation and soil investigations (Sections 1803 and 1803A); excavation, grading, and fill (Sections 1804 and 1804A); damp-proofing and waterproofing (Sections 1805 and 1805A); allowable loadbearing values of soils (Sections 1806 and 1806A); the design of foundation walls, retaining walls, embedded posts and poles (Sections 1807 and 1807A), and foundations (Sections 1808 and 1808A); and design of shallow foundations (Sections 1809 and 1809A) and deep foundations (Sections 1810 and 1810A). Chapter 33 of the 2019 CBC includes requirements for safeguards at work sites to ensure stable excavations and cut or fill slopes (Section 3304).

Construction activities are subject to occupational safety standards for excavation and trenching, as specified in the California Division of Occupational Safety and Health (Cal/OSHA) regulations (Title 8 CCR) and in Chapter 33 of the CBC. These regulations specify the measures to be used for excavation and trench work where workers could be exposed to unstable soil conditions. The proposed Project would be required to employ these safety measures during excavation and trenching.

California Environmental Quality Act

The CEQA Guidelines require that all private and public activities not specifically exempted be evaluated against the potential for environmental damage, including effects to paleontological resources. Paleontological resources, which are limited, nonrenewable resources of scientific, cultural, and educational value, are recognized as part of the environment under these State guidelines. This study satisfies project requirements in accordance with CEQA (13 PRC Section 2100 et seq.) and PRC Section 5097.5 (Stats 1965: 2792). This analysis also complies with guidelines and significance criteria specified by SVP (2010).

Paleontological resources are explicitly afforded protection by CEQA, specifically in Section VII(f) of CEQA Guidelines Appendix G, the “Environmental Checklist Form,” which addresses the potential for adverse impacts to “unique paleontological resource[s] or site[s] or ... unique geological feature[s].” This provision covers fossils of signal importance – remains of species or genera new to science, for example, or fossils exhibiting



features not previously recognized for a given animal group – as well as localities that yield fossils significant in their abundance, diversity, preservation, and so forth. Further, CEQA provides that generally, a resource shall be considered “historically significant” if it has yielded or may be likely to yield information important in prehistory [PRC Section 15064.5 (a)(3)(D)]. Paleontological resources would fall within this category. PRC Sections 5097.5 and 30244 also regulate removal of paleontological resources from State lands, define unauthorized removal of fossil resources as a misdemeanor, and require mitigation of disturbed sites.

#### California Health and Safety Code

Sections 17922 and 17951-17958.7 of the California Health and Safety Code require cities and counties to adopt and enforce the current edition of the CBC, including a grading section. Sections of Volume II of the CBC specifically apply to select geologic hazards.

#### California Occupational Safety and Health Administration Regulations

In California, Cal/OSHA has responsibility for implementing federal rules relevant to worker safety, including slope protection during construction excavations. Cal/OSHA’s requirements are more restrictive and protective than federal OSHA standards. 8 CCR Chapter 4, Division of Industrial Safety, covers requirements for excavation and trenching operations, as well as safety standards, whenever employment exists in connection with the construction, alteration, painting, repairing, construction, maintenance, renovation, removal, or wrecking of any fixed structure or its part.

#### *Local*

The California Government Code Section 65302(f) and (i) requires a Seismic Safety Element and Safety Element as part of all city and county general plans. The Santa Barbara County General Plan Seismic Safety and Safety Element is intended to guide land use planning by providing pertinent data regarding geologic, soil, seismic, fire, and flood hazards. This element contributes information on the comparative safety of using lands for various purposes, types of structures, and occupancies. The Santa Barbara County Hazard Mitigation Plan contains a number of maps and updated data and serves as the primary guiding document regarding public safety in the event of natural disasters.

#### ***Methodology:***

The following analysis considers whether the proposed Project would cause geologic and soils impacts, considering State-mandated construction methods as specified in the Cal/OSHA regulations (Title 8 CCR), the County Building Code (Chapter 10 of the Santa Barbara Building Code), and in Chapter 33 of the CBC. Moreover, the analysis considers whether a unique paleontological resource, site, or geologic feature would be directly or indirectly destroyed as a result of the proposed Project. If impacts are determined to be potentially significant, mitigation measures would be provided to reduce impacts to less than significant levels, if feasible.

Additionally, the analysis below has been written against the backdrop of CEQA case law addressing the scope of analysis required in EIRs for potential impacts resulting from existing environmental hazards such as geological hazards in the vicinity of a site for a proposed Project. In *California Building Industry Association v. Bay Area Air Quality*

Management District (2015) 62 Cal.4th 369, 377 (“CBIA”), the California Supreme Court held that “agencies subject to CEQA generally are not required to analyze the impact of existing environmental conditions on a project’s future users or residents.” For this reason, the court found the following former language from CEQA Guidelines Section 15126.2, subdivision (a), to be invalid: “[A]n EIR on a subdivision astride an active fault line should identify as a significant effect the seismic hazard to future occupants of the subdivision. The subdivision would have the effect of attracting people to the location and exposing them to the hazards found there” (California Supreme Court 2015).

The court did not hold, however, that CEQA never requires consideration of the effects of existing environmental conditions on the future occupants or users of a proposed Project. The circumstances in which such conditions may be considered are narrow: “when a proposed Project risks exacerbating those environmental hazards or conditions that already exist, an agency must analyze the potential impact of such hazards on future residents or users. In those specific instances, it is the project’s impact on the environment—and not the environment’s impact on the Project—that compels an evaluation of how future residents or users could be affected by exacerbated conditions.” Because this exception to the general rule would presumably never apply to existing seismic hazards, the court concluded that this particular topic was outside the ambit of CEQA (California Supreme Court 2015).

These considerations are reflected in the significance thresholds set forth above, which consider the extent to which the proposed Project would directly or indirectly cause potential substantial adverse effects.

***Environmental Determination:***

***a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:***

- 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.***

Impact: No Impact

As discussed above, the Project site is not within a State of California Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act. In addition, based on a site-specific evaluation of the surface rupture hazard by Earth Systems Pacific in 2009, no evidence of faulting associated with the nearby More Ranch Fault was observed in the vicinity of the proposed digester and related facilities. As a result, the Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault. No impacts would occur.

- ii. Strong seismic ground shaking?***

Impact: Less Than Significant

The Project site is in a seismically active area of southern California, with numerous active and potentially active faults in the region. These faults are capable of producing strong, seismically induced ground shaking, with maximum moment magnitudes of 6.7 to 7.7.

However, the Project would be designed and constructed in accordance with the 2019 CBC, which specifies that the maximum considered earthquake ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. Ninyo & Moore (2021) calculated a peak ground acceleration of 1.05 g (percent of gravity). This ground acceleration was calculated based on a magnitude 7.4 earthquake on the Red Mountain Fault, at a distance of 2.5 miles from the site. The proposed facilities would also be designed and constructed in accordance with recommendations in the project-specific geotechnical report by Ninyo & Moore, thus minimizing the potential for damage as a result of seismically induced ground failure. As a result, the Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking. Less than significant impacts would occur.

**iii. Seismic-related ground failure, including liquefaction?**

Impact: Less Than Significant

As previously discussed, the Santa Barbara County Comprehensive Plan Seismic Safety and Safety Element indicates the subject site is in an area of moderate liquefaction potential. However, based on the project-specific geotechnical investigation by Ninyo & Moore (2021), liquefaction is not a design consideration for the Project due to the relatively shallow depth to claystone and sandstone bedrock materials encountered during subsurface exploration. Other forms of seismic-related ground failure include lateral spreading and differential settlement. Lateral spreading is a form of slope failure, in which unsupported soils on slopes underlain by liquefaction-prone soils fail laterally, resulting in tension cracks, block failure, and flowing sands. Because the Project site is not underlain by liquefaction-prone soils, lateral spreading is not anticipated at the site. Differential settlement occurs as a result of the non-uniform movement of soils (i.e., soil settlement at different rates), potentially resulting in foundation cracking and pipeline/utility damage. Project design and construction would occur in accordance with provisions of the 2019 CBC and recommendations in the Project-specific geotechnical report by Ninyo & Moore, thus minimizing the potential for damage as a result of seismically induced differential settlement. These recommendations include over excavation and recompaction of loose, unconsolidated sediments, as well as seismic design of foundations, piping, and related facilities. As a result, the proposed Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving seismic-related ground failure. Less than significant impacts would occur.

**iv. Landslides?**

Impact: No Impact

As previously discussed, the topography of the Project site is relatively flat, and based on a project-specific evaluation by Ninyo & Moore (2021), landslides would not occur in association with the Project. As a result, the proposed Project would not directly or indirectly cause substantial adverse effects, including the risk of loss, injury, or death involving landslides. No impacts would occur.

**b) Result in substantial soil erosion or the loss of topsoil?**

Impact: Less Than Significant

The proposed Project would include construction of a new digester, CHP system, biogas pretreatment system, and biogas storage tank. Demolition would be required prior to new digester and CHP system construction; however, the biogas pretreatment system would be located over the existing equipment pads not in use, and the existing Digester 1 would be decommissioned and may be repurposed (but not as a digester) in the future. An equipment staging area would be created during construction in the front lawn of the WRRF. Demolition and removal of existing concrete and pavement would expose soils to wind and water erosion. Soil excavation required for construction of the 55-foot-wide digester, CHP system, and associated piping would result in temporary stockpiling of soil pending backfill and/or export from the site. Approximately 6,600 cubic yards of soil would be excavated and 5,700 cubic yards would be backfilled, resulting in 900 cubic yards of soil exported from the site. In addition, grass in the staging area would be removed prior to construction or degraded due to use, resulting in removal of existing grass and exposure of underlying soils. Temporary soil exposure during construction would expose soils to wind and water erosion, which in turn could result in sedimentation of downstream receiving waters.

Storm water runoff within the WRRF is captured internally. Storm water drains to on-site stabilization basins, where the water evaporates or flows to the main pump station for treatment through the entire wastewater treatment process, before being discharged to the Pacific Ocean approximately 1 mile offshore. However, storm water runoff from the western portion of the WRRF drains primarily as sheet flow toward Moffett Place, and then in turn drains south toward the Goleta Slough. Storm water runoff from portions of the site that do not drain internally would be subject to provisions of the Santa Barbara County Storm Water Management Program, Small Municipal Separate Storm Sewer System (MS4) Permit. This permit includes a Construction Site Storm Water Runoff Control Program, which requires the permittee to develop, implement, and enforce a program to prevent construction site discharge of pollutants and impacts on beneficial uses of receiving waters. The program shall include, at a minimum, requirements for erosion and sediment controls, soils stabilization, dewatering, source controls, pollution prevention measures, and prohibited discharges.

In compliance with the MS4 Permit requirements, and regardless of whether areas of exposed soil drain internally or off-site, GSD's existing SWPPP would be updated to include an erosion and sediment control plan, to be implemented during construction. The plan would require implementation of BMPs, including:

- a. Methods such as geotextile fabrics, erosion control blankets, retention basins, drainage diversion structures, siltation basins, and/or spot grading will be used to reduce erosion and siltation into adjacent water bodies or storm drains during grading and construction activities.
- b. Entrances/exits to the construction site will be stabilized (e.g., using rumble plates, gravel beds, or other best available technology) to reduce transport of sediment off-site. Any sediment or other materials tracked off-site will be removed the same day as they are deposited using dry cleaning methods.
- c. Storm drain inlets will be protected from sediment-laden waters by the use of inlet protection devices such as gravel bag barriers, filter fabric fences, block and gravel filters, and excavated inlet sediment traps.

- d. Construction staging and storage areas will be shown on the grading plans. These areas will be fenced, BMPs such as hay bales will be installed around the perimeter to prevent runoff from leaving the staging area, and entrances/exits will be stabilized.
- e. Exposed graded surfaces will be reseeded with ground cover vegetation to minimize erosion within 4 weeks of grading completion. This requirement will be noted on the building and grading plans.
- f. Erosion and sediment control measures will be in place throughout grading and development of the site until all disturbed areas are permanently stabilized.
- g. Construction materials and waste, such as paint, mortar, concrete slurry, fuels, etc., will be stored, handled, and disposed of in a manner which minimizes the potential for storm water contamination. Bulk storage locations for construction materials and any measures proposed to contain the materials will be shown on the building and grading plans.
- h. A copy of the updated SWPPP will be maintained on the Project site during grading and construction activities.

With compliance with the Santa Barbara County Storm Water Management Program, Small MS4 Permit, including site-specific BMPs to be established during demolition, excavations, and construction, the proposed Project would not result in substantial soil erosion or the loss of topsoil. As a result, impacts would be less than significant.

***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?***

Impact: Less Than Significant

As discussed above, soils beneath the Project site are not conducive to liquefaction and associated lateral spreading. The topography of the site is relatively flat to gently sloping and not subject to landslides. In addition, the Project area is not an area of ground subsidence due to excessive groundwater pumping, oil extraction, or peat loss (USGS 2021). Based on borings drilled at the site, existing fill soils and terrace deposits are composed of granular soils that may be subject to caving, which could result in differential settlement and distress to overlying structures and related infrastructure.

However, design and construction of the Project would be in compliance with the CBC and recommendations of the project-specific geotechnical report by Ninyo & Moore (2021). This report includes recommendations for over excavation and re-compaction of loose, unconsolidated soils in the area of the proposed digester. Based on borings drilled at the site, approximately 8 feet of relatively loose fill is present beneath the proposed digester and CHP system. The majority of the fill would be removed by the planned excavation of Digester 4. However, where the fill is not removed, additional excavation would be completed such that the undocumented fill and loose surficial soils are removed to expose competent native materials. The remedial grading would extend approximately 5 feet beyond the perimeter of the digester. Similar remedial grading would be completed beneath the CHP system. The excavation bottoms would be evaluated by a soils engineer during

construction. Additional over excavation of loose, soft, wet, and/or undocumented fill may be appropriate depending on the conditions exposed during grading.

In addition, temporary slopes would be constructed in these loose, unconsolidated sediments during soil over excavation, creating potential safety hazards to construction workers. However, these temporary slopes would be constructed in compliance with provisions of the 2019 CBC, Cal/OSHA, and recommendations of the project-specific geotechnical report (Ninyo & Moore 2021). This report recommends that unstable excavations, including those less than 4 feet in height (as applicable), should be laid back to slope inclinations of 1.5:1 (horizontal to vertical) or flatter. Where excavations cannot be laid back, shoring would be appropriate.

In summary, construction would occur within loose unconsolidated soils, which are prone to caving. However, compliance with standard geotechnical engineering, the CBC, and Cal/OSHA would minimize the potential for caving during construction and operations such that impacts would be less than significant.

***d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?***

Impact: Less Than Significant

The site-specific geotechnical report (Ninyo & Moore 2021) did not evaluate the potential for soil expansion, presumably because the soils are generally coarse grained (i.e., not clay rich). Consequently, soils with expansion potential are not anticipated at the Project site. Regardless, project design and construction would be completed in conformance with the 2019 CBC regarding expansive soils, as applicable, such that the Project would not create substantial direct or indirect risks to life or property. As a result, impacts would be less than significant.

***e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?***

Impact: No Impact

The proposed Project includes upgrades to the GSD wastewater treatment facility. As such, septic tanks or alternative wastewater disposal systems would not be utilized as part of the Project. Therefore, no impacts would occur.

***f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?***

Impact: No Impact

The proposed Project site is located within the west-central Transverse Ranges Geomorphic Province, which extends from Point Conception in the west to the San Bernardino Mountains in the east. The province also includes the San Gabriel, Santa Monica, and Santa Ynez Mountains and the offshore San Miguel, Santa Rosa, and Santa Cruz Islands (CGS 2002; Morton and Miller 2006). This geomorphic province structure is east-west trending and is oblique to the normal northwest trend of coastal California.

Regionally, the Transverse Ranges extend offshore west to include the continental shelf and offshore islands of Santa Cruz, Santa Rosa, and San Miguel (CGS 2002).

According to surficial geological mapping by Dartnell et al. (2011) at a 1:24,000 scale, the northeastern portion of the proposed Project site is underlain mapped deposits of Holocene (<11,700 years ago) estuarine deposits (map unit Qe); the central portion of the Proposed Project site is underlain by early Pleistocene (approximately 1.8 to 2.58 million years ago) to possibly late Pliocene (approximately 2.58 to 3.6 million years ago) siltstone unit of an unnamed, marine sedimentary unit (map unit QTst); and the upper siliceous unit of the late Miocene (approximately 5.33 to 11.63 million years ago) is marine, Monterey Formation (map unit Tmu) mapped in the southernmost portion of the proposed Project site.

Dudek requested a paleontological records search from the LACM on April 8, 2021, and the results were received on April 14, 2021. The museum reported localities from similar deposits in the vicinity of the proposed Project site (Appendix E). The fossil localities are listed in Table 3-11.

No paleontological resources were identified within the proposed Project site as a result of the institutional records search and desktop geological and paleontological review, and the proposed Project site is not anticipated to be underlain by unique geologic features. The Pleistocene deposits, possible late Pliocene deposits, and Monterey Formation have produced significant paleontological resources in the area and are considered to have high paleontological sensitivity. The Holocene estuarine deposits have low paleontological sensitivity on the surface that increases to high with depth, where older Pleistocene to Pliocene deposits and/or Monterey Formation may be present. Artificial fill, if present, has no paleontological sensitivity. Given the proximity of past fossil discoveries in the surrounding area and the potential for significant invertebrate and vertebrate fossils below any artificial fill present within the proposed Project site, the site is highly sensitive for supporting paleontological resources. In the event that intact paleontological resources are located on the proposed Project site, ground-disturbing activities associated with construction of the proposed Project, such as grading during site preparation and trenching for pipelines or utilities, have the potential to destroy a unique paleontological resource or site. Without mitigation, the potential damage to paleontological resources during construction would be a potentially significant impact. However, upon implementation of MM-GEO-1, impacts would be reduced to below a level of significance. Impacts of the proposed Project are considered less than significant with mitigation incorporated during construction.

**Table 3-11: LACM Fossil Localities Near the Project Site**

Locality Number	Formation/Depth Below the Surface	Approximate Location	Taxa
LACM VP 5018; LACM IP 36, 416, 6913, 6919	Unknown Pleistocene Unit/Unknown Depth	Seacliff about south of Isla Vista between Goleta Point & Coal Oil Point	Fish (Osteichthyes); Invertebrates (Alia, Axinopsida, Barbarofusus, Caesia, Callianax, Callithaca, Calyptraea, Cancer, Cellaria, Crepidula, Cystiscidae, Decapoda, Glans, Hima, Leukoma, Lirobittium, Lottia, Lucinisca, Mactromeris, Macoma, Miodontiscus, Mitrella, Mytilidae, Nutricola, Ostrea, Paciocinebrina, Penitella, Platyodon, Saxidomas, Solen, Strongylocentrotus, Tellina, Tresus, Urosalpirix)
LACM VP 7954	Monterey Formation/Surface	El Capitan State Beach	Sperm Whale (Physeteridae)
LACM IP 8057	Pleistocene Marine Terrace/Unknown Depth	Along the Coast East of Goleta Landing	Marine Gastropod (Cryptonatica)
LACM IP 8056	Unnamed Pleistocene Conglomerate/Unknown Depth	Along the Coast East of Goleta Landing	Unspecified Invertebrates
LACM VP 1013	Unnamed Miocene Formation/Unknown Depth	Victoria St. Sand Pit. Packard's Hill	Cormorant (Phalacrocorax)
LACM VP 5610, 65174	Monterey Formation/Unknown Depth		Flounder (Paralichthys), bony fish (Eclipes, Thyrsocles), herring (Xyne grex); plants

IP, Invertebrate Paleontology Collections; VP, Vertebrate Paleontology Collections.

***Cumulative Impacts:***

Cumulative development throughout the Goleta Valley would not incrementally contribute to geologic resource impacts. Geologic impacts are generally site-specific and do not contribute incrementally to other projects in the area. As a result, the Project’s contribution to cumulative geologic resource impacts would not be considerable, and cumulative impacts would be less than significant.

***Mitigation Measures:***

See Section 3.5.4 for Mitigation Measure MM-GEO-1 to mitigate potential impacts to paleontological resources during construction. This measure requires implementation of a Paleontological Resources Impact Mitigation Program and paleontological monitoring prior to the implementation of any grading activity. With the implementation of this program, the potential impact of the proposed Project on geological and paleontological resources will be less than significant.



**VIII. Greenhouse Gas Emissions**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>VIII. Greenhouse Gas Emissions.</b> Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Existing Conditions:**

All biogas produced at the facility must be combusted to avoid the release of methane, H<sub>2</sub>S, and other organics to the atmosphere. Currently, this combustion takes place at a boiler and a flare. By mass balance, the CO<sub>2</sub> emissions are essentially dictated by the total biogas produced, which is a function of organic concentrations in, and volume of, the influent wastewater. Although the facility’s heat needs are primarily being met with a biogas-fueled boiler, the facility does not currently generate any electricity.

According to a GHG emissions inventory completed by Hazen and Sawyer in 2020, the facility emits about 6.3 metric tons (MT) of carbon dioxide equivalent (CO<sub>2</sub>e) per million gallons of wastewater treated. At 4.9 MGD, this equates to about 11,220 MT CO<sub>2</sub>e per year.

**Regulatory Setting:**

For this resource area, an investigation of the proposed Project’s potential impact on climate change related to emissions of GHGs was conducted. There is a strong scientific consensus that the rapidity of the heating across the planet in recent decades is primarily caused by GHG emissions from human activities. Atmospheric concentrations of CO<sub>2</sub>, the main GHG, have been increasing rapidly in recent decades, with current levels representing an increase of nearly 45% over pre-industrial levels. Climate change could also have major impacts on the region’s natural systems, water supply, economy, and infrastructure.

Assembly Bill 32, also known as the California Global Warming Solutions Act of 2006, was established to mandate the quantification and reduction of GHGs to 1990 levels by 2020. The law establishes periodic targets for reductions and requires certain facilities to report GHG emissions on an annual basis. The 2017 Climate Change Scoping Plan prepared by CARB outlines the main strategies California will implement to achieve the legislated GHG emission reduction targets needed by key sectors (e.g., transportation, industry, electricity generation, agriculture, waste management, and water).

To implement the market-based incentive provisions of Assembly Bill 32, CARB approved a carbon Cap-and-Trade Program to establish a system of market-based declining annual aggregate emission limits for GHG emission sources, applicable from January 1, 2013, to December 31, 2020. The overall GHG emissions cap under the program declines by 3% each year from 2015 through 2020. In September 2016, Governor Jerry Brown signed Senate Bill 32, which mandated a GHG emissions reduction target of 40% below 1990 emission levels by 2030. This bill effectively extended the efforts already in effect associated with Assembly Bill 32 implementation.

In addition to CARB's California 2017 Climate Change Scoping Plan, the SBCAPCD offers guidance on GHG reduction in the 2019 Ozone Plan. However, in general, the SBCAPCD's Ozone Plan defers to SBCAG's Fast Forward 2040 RTP-SCS, adopted in August 2017, which outlines methods for the region to achieve the required GHG per capita emission targets, as well as the co-benefits of reducing criteria pollutants. Neither document specifically mentions thresholds for GHGs.

Additionally, the Santa Barbara County Strategic Energy Plan (2019) provides a roadmap to improve utilization of renewable energy sources within the region. The Santa Barbara County Environmental Thresholds and Guidelines Manual does stipulate a 1,000 MT CO<sub>2e</sub> per year threshold for a stationary source project. This threshold also stipulates that "Climate change under CEQA differs from most other types of impacts in that they are examined as a cumulative impact that results not from an individual project's GHG emissions, but rather from GHG emissions emitted on a global scale for many decades and from many different sources," and "The interim GHG emissions thresholds are designed to identify (1) a cumulatively considerable contribution to an existing adverse condition, and (2) a cumulatively significant impact in combination with other projects causing related impacts." As a result, cumulative impacts are wrapped into the applicable threshold.

***Environmental Determination:***

***a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?***

Impact: Less Than Significant

The proposed Project will use digester gas to generate heat and power, which is a productive use of digester gas. Assuming that all digester gas combusted in the CHP engine would instead have been combusted in the boiler to produce heat, the Project would result in a net emissions increase of 7.1 MT CO<sub>2e</sub> per year. Santa Barbara County specifies a threshold of 1,000 MT CO<sub>2e</sub> per year for a stationary source project in its Environmental Thresholds and Guidelines Manual (January 2021), so this Project should be considered less than significant. It is also worth noting that this scenario is a worst-case scenario. In a situation (potentially during warm weather) when the boiler would not be needed to provide heat to the digesters (i.e., the heat from the CHP is sufficient) and the digester gas would alternatively be sent to the flare, the CO<sub>2e</sub> emissions change could be net negative.

The change in GHG emissions from non-renewable sources should also be considered. Since digester gas is a renewable source, the primary benefit of the digester gas engine comes from CO<sub>2e</sub> emission reductions in reducing grid electricity demand, which relies on non-renewable sources. Assuming the engine runs at 100% load, 100% of the time, this

Project would result in a net decrease of about 290 MT per year of non-renewable CO<sub>2</sub>e. If the engine runs at less than 100% load or less than 100% of the time, the non-renewable CO<sub>2</sub>e emissions will still decrease under any reasonable operation scenario (e.g., 80% load, 80% of the time).

Construction emissions per CalEEMod (as discussed in the air quality impacts analysis) are estimated to be about 200 MT CO<sub>2</sub>e per year and about 386 MT CO<sub>2</sub>e total. This level of GHG emissions is also less than significant. More detail on construction emissions can be found in Appendix B.

***b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?***

Impact: Less Than Significant

An increase of 7.1 MT CO<sub>2</sub>e per year with a decrease in non-renewable CO<sub>2</sub>e emissions of 290 MT CO<sub>2</sub>e per year is not expected to be at odds with any GHG reduction plan (federal, State, or local). In fact, utilizing biogenic fuels in CHP engines is promoted in the Waste Heat and Carbon Emissions Reduction Act and local Santa Barbara County Strategic Energy Plan. As mentioned previously, the SBCAPCD Ozone Plan defers to SBCAG's Fast Forward 2040 for GHG reductions. SBCAG's Fast Forward 2040 focuses on transportation instead of stationary sources, which this Project will not affect. Previous SBCAPCD clean air plans (e.g., the SBCAPCD's 2013 Clean Air Plan) have introduced several rules around GHG emissions. Compliance with all SBCAPCD rules is expected. Therefore, this Project is expected to be consistent with applicable plans.

***Mitigation Measures:***

No mitigation is required.

**IX. Hazards and Hazardous Materials**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>IX. Hazards and Hazardous Materials.</b> Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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 or excessive noise for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

***Existing Conditions:***

Current operations at GSD involve transport, storage, use, and disposal of hazardous materials. Wastewater treatment operations by intention typically involve the use of hazardous materials during routine operations for disinfection and treatment of wastewater and during routine facility maintenance for painting and diesel-powered equipment maintenance. Many of the materials used in routine operation at the proposed Project site are considered hazardous, and while many are stored and used in significant quantity on a daily basis, use of and access to these materials is controlled. Furthermore, materials used for painting and equipment repair activities generally are maintained at the site in limited quantities and are stored and handled following manufacturer and regulatory agency guidelines for safety.

Routine operations at the proposed Project site include use and storage of wastewater treatment chemicals such as sodium hypochlorite, sodium bisulfite, and ferrous chloride, which are transported to the site in bulk quantities and stored for daily use. Operations at the site also generate the flammable and toxic gases methane and H<sub>2</sub>S.

According to EnviroStor and GeoTracker, two government programs run by the California Department of Toxic Substances Control (DTSC) and SWRCB, respectively, the site is not a previous spill site and does not have any known sources of contamination.

***Environmental Determination:***

***a) Create significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?***

Impact: Less Than Significant

Operation of the proposed Project may involve transport, storage, use, and disposal of hazardous materials. For example, there will be hazardous materials associated with the digester gas CHP engine (lubrication fluids, cooling fluids, etc.), the volume of which is expected to be minimal. Handling of hazardous materials will continue to be controlled through implementation of GSD's Hazardous Materials Business Plan (HMBP) (GSD 2021), which will be updated and maintained by the facility as required by the local Certified Unified Program Agency (CUPA). Finally, the facility expects to continue to comply with applicable hazardous waste disposal regulations. Since the facility has readily available methods for safe transportation (DTSC and Department of Transportation approved transporters) and is required to ship certain wastes as hazardous wastes, the operational impacts of the transport, use, and disposal of hazardous materials would be less than significant.

Construction activities for the proposed Project would be short-term and one-time in nature, and would involve the limited transport, storage, use, and/or disposal of hazardous materials. Some examples of hazardous materials handling include fueling and servicing construction equipment on-site and the transport of fuels, lubricating fluids, and solvents. These types of materials, however, are not acutely hazardous, and all storage, handling, and disposal of these materials are regulated by the DTSC, the EPA, OSHA, and the Santa Barbara County Fire Department. Therefore, construction impacts would be less than significant.

***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?***

Impact: Less Than Significant

The facility could 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. Routine operations at the site include use and storage of wastewater treatment chemicals such as sodium hypochlorite and sodium bisulfite, which are transported to the site in bulk quantities and stored for daily use. Operations at the site are also expected to generate flammable and toxic gases, including methane and H<sub>2</sub>S. As such, there are reasonably foreseeable upset or accident conditions (storage container failure during transportation, digester failure, etc.) that could create a significant hazard to the public and/or on-site personnel due to the release of these hazardous materials.

However, the proposed Project is not expected to increase any risks to the public or environment from reasonably foreseeable upset or accident conditions. The site may use small amounts of hazardous materials for the maintenance of the CHP engine; however, upset or accident conditions related to these hazardous materials (engine lubricant, coolant, etc.) are not expected to cause a significant hazard to the public or environment. The new digester is not expected to be any more significant a hazard than the existing digesters.

GSD's HMBP (GSD 2021) and Emergency Response Plan (GSD 2021) already contain provisions to store and handle hazardous chemicals and manage flammable and toxic gases produced by treatment processes (methane, H<sub>2</sub>S, etc.) including lockout/tagout procedures on critical control systems, leak detection, air quality monitoring, and fugitive gas collection and destruction. While GSD's HMBP and Emergency Response Plan are updated annually and would need to be revised to include the new equipment that would be added under the proposed Project, the plant's hazardous materials management and emergency response procedures would remain the same.

Therefore, impacts on hazards to the public or environment from reasonably foreseeable upset or accident conditions are less than significant.

***c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

Impact: No Impact

There is no impact related to the potential for the proposed Project to emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 miles of an existing or proposed school, as no public schools are located or proposed for construction within 0.25 miles of the proposed Project site.

***d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code 65962.5 and as a result, would it create a significant hazard to the public or the environment?***

Impact: No Impact

Soils will be disturbed as a result of this Project. EnviroStor and GeoTracker indicate that the site does not have any known contamination. EnviroStor is a database maintained by the California DTSC for known contamination and/or remediation sites. GeoTracker is a database maintained by the SWRCB and documents leaking underground storage tanks. The nearest leaking underground storage tank is nearly 2,000 feet away at the airport. There are two sites in EnviroStor labeled “military evaluation” more than 700 feet from the disturbed soil; however, there are no active contaminated sites or remediation sites within 1 mile of the site. As a result, disturbing the soils should not have an impact to the public or the environment.

***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 or excessive noise for people residing or working in the project area?***

Impact: Less Than Significant

The proposed Project is located within an airport land use plan, resulting in a safety hazard for people residing or working in the Project area. The nearest public airport to the proposed Project is the adjacent Santa Barbara Municipal Airport, located immediately west of One William Moffett Place, the western boundary to the proposed Project site. While the airport is located adjacent to the proposed Project site, the site is not located beneath the approach, departure, or sideline zones of the airport, the areas of greatest hazard to people on the ground. Furthermore, as this Project is an expansion of the existing facility with no permanent additional personnel, only a limited number of additional temporary personnel for construction will be exposed to the hazard posed by the airport. Implementation of the proposed Project requires no change in zoning for the site, and the impact is considered less than significant.

***f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?***

Impact: Less Than Significant

While GSD’s HMBP and Emergency Response Plan are updated annually and would need to be revised to include the new equipment that would be added under the proposed Project, the plant’s hazardous materials management and emergency response procedures would mostly remain the same. The facility will reevaluate its emergency response plan and evacuation plan and make necessary changes; however, no significant changes are expected, as the equipment does not restrict movement along evacuation routes and the small amounts of new hazardous materials associated with the engine are not expected to alter the emergency response plan significantly. Therefore, impacts would be less than significant.

***g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?***

Impact: No Impact

The proposed Project would not expose people or structures to a risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas

or where residences are intermixed with wildlands. The proposed Project site is located in a partially developed portion of the Goleta Valley. The surrounding area does not contain dense areas of flammable brush, grass, or trees. The site is not near areas containing dense vegetation (flammable brush) considered to be wildlands. The proposed Project is surrounded by asphalt, concrete, and grass, which do not pose a significant fire risk. Furthermore, the proposed Project is required to comply with local fire code requirements. Therefore, no impact would occur.

***Mitigation Measures:***

No mitigation is required.



**X. Hydrology and Water Quality**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>X. Hydrology and Water Quality.</b> Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) result in a substantial erosion or siltation on- or off-site;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

***Existing Conditions:***

The WRRF is located adjacent to San Pedro Creek, which occurs as a north-south trending engineered channel in the Project area. San Jose Creek and Atascadero Creek are approximately 300 feet and 700 feet southeast of the Project site, respectively, and the Goleta Slough Channel is approximately 1,200 feet south of the Project site. These waterways converge into the Goleta Slough, which in turn flows into the Pacific Ocean, approximately 2,000 feet southeast of the WRRF.

Except for the western, mostly landscaped portion of the WRRF along Moffett Place, storm water runoff within the WRRF is captured internally. Storm water drains to on-site stabilization basins, where the water evaporates or flows to the main pump station for treatment through the entire wastewater treatment process, before being discharged to the Pacific Ocean approximately 1 mile offshore. Although much of the storm water runoff in the western portion of the WRRF is captured by the large grassy lawn, the residual runoff drains primarily as sheet flow toward Moffett Place, and then in turn drains south toward the Goleta Slough.

Surface water quality at the Project site is regulated in accordance with the Santa Barbara County Storm Water Management Program, pursuant to SWRCB Water Quality Order No. 2013-0001-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS0000004 Waste Discharge Requirements for Storm Water Discharges from Small MS4s (Small MS4 Permit).

The WRRF overlies the southern perimeter of the Central Subbasin of the Goleta Groundwater Basin, which extends from the Santa Ynez Range foothills on the north to the More Ranch Fault Zone on the south. This east-west trending fault zone traverses and lies south of the WRRF. The Goleta Groundwater Basin is divided into three subbasins, including the West, Central, and North Subbasins. Most usable groundwater in storage is in the Central Subbasin. The Central and North Subbasins are adjudicated and the West Subbasin is partially adjudicated. Based on the adjudicated status, the Goleta Groundwater Basin is designated as a very low to low priority basin under the 2014 Sustainable Groundwater Management Act (SGMA). The Department of Water Resources (DWR) focuses on high and medium priority basins as a first step in ensuring groundwater sustainability (California DWR 2004, 2021; Goleta Water District 2017).

The Goleta Groundwater Basin is naturally recharged by the Cieneguitas, Maria Ygnacio, Atascadero, San Antonio, San Jose, Las Vegas, Tecolotito, and Carneros creeks, as well as by bedrock in the foothills. The principal water-bearing units in the Goleta Groundwater Basin are Holocene to Pleistocene alluvium and Pleistocene Santa Barbara Formation. The alluvium, which yields appreciable amounts of water, reaches a maximum thickness of approximately 100 feet. The Santa Barbara Formation, which is the main source of water in the basin, has a maximum thickness of 2,000 feet in the southern part of the basin. Groundwater in the Santa Barbara Formation is generally confined (California DWR; Goleta Water District 2017). Based on borings drilled at the site in December 2020, groundwater is present at a depth of approximately 57 feet below ground surface. However, groundwater was measured at a depth of 3 feet approximately 1,400 feet northeast of the Project site, on the east side of San Pedro Creek. This depth of 3 feet corresponds to an approximate elevation of 6 feet AMSL (Ninyo & Moore 2021).

Portions of the WRRF, including solids stabilization basins 2 and 3 and the flow equalization basin, are within a 100-year flood hazard zone. However, none of the proposed Project construction areas are within the flood hazard zone (FEMA 2018). The entire WRRF is within a 500-year flood zone. No portions of the WRRF are within a Tsunami Inundation Zone (CDOC 2009; City of Goleta 2016).

***Regulatory Setting:***

*Federal*

Clean Water Act

Increasing public awareness and concern for controlling water pollution led to the enactment of the Federal Water Pollution Control Act Amendments of 1972. As amended in 1977, this law became commonly known as the CWA (33 USC 1251 et seq.). The objective of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. The CWA established basic guidelines for regulating discharges of pollutants into waters of the United States. The CWA requires that states adopt water quality standards to protect public health, enhance the quality of water resources, and ensure implementation of the CWA.

Section 303 of the Clean Water Act (Beneficial Use and Water Quality Objectives)

The Central Coast RWQCB is responsible for the protection of the beneficial uses of waters within the proposed Project area in Santa Barbara County. The RWQCB uses its planning, permitting, and enforcement authority to meet its responsibilities adopted in the Basin Plan to implement plans, policies, and provisions for water quality management.

In accordance with State policy for water quality control, the RWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan for the Central Coast Region has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction. Under CWA Section 303(d), the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. A Total Maximum Daily Load (TMDL) defines how much of a specific pollutant/stressor a given water body can tolerate and still meet relevant water quality standards. The RWQCB has developed TMDLs for select reaches of water bodies.

Section 401 of the Clean Water Act (Water Quality Certification)

Section 401 of the CWA requires that an applicant for any federal permit (e.g., a USACE Section 404 permit) obtain certification from the state, requiring discharge to waters of the United States to comply with provisions of the CWA and with state water quality standards. For example, an applicant for a permit under Section 404 of the CWA must also obtain water quality certification per Section 401 of the CWA. Section 404 of the CWA requires a permit from the USACE prior to discharging dredged or fill material into waters of the United States unless such a discharge is exempt from CWA Section 404. For the Project area, the Santa Ana RWQCB provides the water quality certification required under Section 401 of the CWA.

### Section 402 of the Clean Water Act (NPDES)

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with an NPDES permit. The NPDES permit program, as authorized by Section 402 of the CWA, was established to control water pollution by regulating point sources that discharge pollutants into waters of the United States (33 USC 1342). In California, the EPA has authorized the SWRCB permitting authority to implement the NPDES program.

Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES Program to address storm water discharges from construction sites that disturb land equal to or greater than 1 acre and less than 5 acres (small construction activity). The regulations also require that storm water discharges from small MS4s be regulated by an NPDES General Permit for Storm Water Discharges Associated with Construction Activity, Order No. 99-08-DWQ (i.e., the General Construction Permit). Based on this document, it is the responsibility of applicants to obtain coverage under the General Construction Permit and develop a SWPPP, which describes BMPs the discharger would use to protect storm water runoff. The BMPs must be designed to prevent, to the maximum extent practicable, an increase in the sediment yield and flow velocity from pre-construction/pre-development conditions, to ensure that applicable water quality standards, including TMDL waste allocations, are met.

The SWPPP must contain a visual monitoring program, a chemical monitoring program for “non-visible” pollutants to be implemented if there is a failure of BMPs, and a sediment monitoring plan if the site discharges directly to a water body listed on the Section 303(d) list for sediment. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. On September 2, 2009, the SWRCB issued a new NPDES General Permit for Storm Water Associated with Construction Activities (Order No. 2009-0009-DWQ, NPDES No. CAS000002), which became effective July 1, 2010.

### National Flood Insurance Program

The National Flood Insurance Act of 1968 established the National Flood Insurance Program in order to provide flood insurance within communities that were willing to adopt floodplain management programs to mitigate future flood losses. The Act also required the identification of all floodplain areas within the United States and the establishment of flood risk zones within those areas. The Federal Emergency Management Agency (FEMA) is the primary agency responsible for administering programs and coordinating with communities to establish effective floodplain management standards. FEMA is responsible for preparing Flood Insurance Rate Maps that delineate the areas of known special flood hazards and their risk to the community. The program encourages the adoption and enforcement by local communities of floodplain management ordinances that reduce flood risks. In support of the program, FEMA identifies flood hazard areas throughout the United States on FEMA flood hazard boundary maps.

### Federal Antidegradation Policy

The Federal Antidegradation Policy (40 CFR Part 131.12) requires states to develop statewide antidegradation policies and identify methods for implementing them. Pursuant to this regulation, state antidegradation policies and implementation methods shall, at a

minimum, protect and maintain: (1) existing in-stream water uses; (2) existing water quality where the quality of the waters exceeds levels necessary to support existing beneficial uses, unless the state finds that allowing lower water quality is necessary to accommodate economic and social development in the area; and (3) water quality in waters considered an outstanding national resource.

*State*

Senate Bill 610 and Senate Bill 221: Water Supply Assessments and Water Supply Verifications

Senate Bill (SB) 610 and SB 221, effective January 1, 2002, improve the linkage between certain land use decisions made by cities and counties and water supply availability. Under Water Code Section 10912(a), projects subject to CEQA requiring a water supply assessment include a residential development of more than 500 dwelling units; a shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space; a commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space; a hotel, motel, or both having more than 500 rooms; an industrial, manufacturing, or processing plant or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land or having more than 650,000 square feet of floor area; a mixed-use project that includes one or more of the projects specified; or a project that would demand an amount of water equivalent to or greater than the amount required by a 500 dwelling unit project. A fundamental source document for compliance with SB 610 is the Urban Water Management Plan, which can be used by the water supplier to meet the standard for SB 610.

Sustainable Groundwater Management Act

On September 16, 2014, Governor Jerry Brown signed into law a three-bill legislative package – Assembly Bill 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley) – collectively known as the SGMA, which requires governments and water agencies of high- and medium-priority basins to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. Under the SGMA, these basins should reach sustainability within 20 years of implementing their sustainability plans. For critically over-drafted basins, sustainability should be achieved by 2040. For the remaining high- and medium-priority basins, 2042 is the deadline. Through the SGMA, the California DWR provides ongoing support to local agencies through guidance, financial assistance, and technical assistance. The SGMA empowers local agencies to form Groundwater Sustainability Agencies to manage basins sustainably and requires Groundwater Sustainability Plans to be completed for crucial (i.e., medium- to high-priority) groundwater basins in California. Adjudicated basins are exempt from developing a Groundwater Sustainability Agency or Groundwater Sustainability Plan.

California Porter-Cologne Water Quality Control Act

Since 1973, the California SWRCB and its nine RWQCBs have been delegated the responsibility for administering permitted discharge into the waters of California. The Project site falls within the jurisdiction of the Central Coast RWCQB. The Porter-Cologne Water Quality Act (California Water Code Section 13000 et seq.; 23 CCR Division 3,

Chapter 15) provides a comprehensive water quality management system for the protection of California waters. Under the Act, “any person discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state” must file a report of the discharge with the appropriate RWQCB. Pursuant to the Act, the RWQCB may then prescribe “waste discharge requirements” that add conditions related to control of the discharge. Porter-Cologne defines “waste” broadly, and the term has been applied to a diverse array of materials, including non-point source pollution. When regulating discharges that are included in the Federal Clean Water Act, the State essentially treats Waste Discharge Requirements and NPDES permits as a single permitting vehicle. In April 1991, the SWRCB and other State environmental agencies were incorporated into the California Environmental Protection Agency.

The RWQCB regulates urban runoff discharges under the NPDES permit regulations. NPDES permitting requirements cover runoff discharged from point (e.g., industrial outfall discharges) and non-point (e.g., storm water runoff) sources. The RWQCB implements the NPDES program by issuing construction and industrial discharge permits.

Under the NPDES permit regulations, BMPs are required as part of a SWPPP. The EPA defines BMPs as “schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of Waters of the United States.” BMPs include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage” (40 CFR Part 122.2).

#### CALGreen

Formerly known as the California Green Building Standards Code, 24 CCR Part 11, CALGreen is designed to improve public health, safety, and general welfare by using design and construction methods that reduce the negative environmental impact of development and to encourage sustainable construction practices. CALGreen provides mandatory direction to developers of all new construction and renovations of residential and non-residential structures with regard to all aspects of design and construction, including, but not limited to, site drainage design, storm water management, and water use efficiency. Required measures are accompanied by a set of voluntary standards designed to encourage developers and local agencies to aim for a higher standard of development.

#### California Antidegradation Policy

The California Antidegradation Policy, otherwise known as the Statement of Policy with Respect to Maintaining High-Quality Water in California, was adopted by the SWRCB (State Board Resolution No. 68-16) in 1968. Unlike the Federal Antidegradation Policy, the California Antidegradation Policy applies to all waters of the State (e.g., isolated wetlands and groundwater), not just surface waters. The policy states that whenever the existing quality of a water body is better than the quality established in individual Basin Plans, such high quality shall be maintained, and discharges to that water body shall not unreasonably affect present or anticipated beneficial use of such water resource.

### California Toxics Rule

The EPA has established water quality criteria for certain toxic substances via the California Toxics Rule. The California Toxics Rule established acute (i.e., short-term) and chronic (i.e., long-term) standards for bodies of water such as inland surface waters and enclosed bays and estuaries that are designated by each RWQCB as having beneficial uses protective of aquatic life or human health.

### California Water Code

The California Water Code includes 22 kinds of districts or local agencies with specific statutory provisions to manage surface water. Many of these agencies have statutory authority to exercise some forms of groundwater management. For example, a Water Replenishment District (Water Code Section 60000 et seq.) is authorized to establish groundwater replenishment programs and collect fees for that service, while a Water Conservation District (Water Code Section 75500 et seq.) can levy groundwater extraction fees. Through special acts of the Legislature, 13 local agencies have been granted greater authority to manage groundwater. Most of these agencies, formed since 1980, have the authority to limit export and control some in-basin extraction upon evidence of overdraft or the threat of an overdraft condition. These agencies can also generally levy fees for groundwater management activities and for water supply replenishment.

### Assembly Bill 3030 – Groundwater Management Act

In 1992, Assembly Bill 3030 was passed, which increased the number of local agencies authorized to develop a groundwater management plan and set forth a common framework for management by local agencies throughout California. These agencies could possess the same authority as a water replenishment district to “fix and collect fees and assessments for groundwater management” (Water Code Section 10754), provided they receive a majority of votes in favor of the proposal in a local election (Water Code Section 10754.3).

### *Local*

### General Waste Discharge Requirements for De Minimis Discharges

On December 8, 2017, the Central Coast RWQCB adopted the Waste Discharge Requirements, NPDES General Permit for Discharges with Low Threat to Water Quality (Order No. R3-2017-0042, NPDES No. CAG993001). This permit regulates the discharge of groundwater and non-storm water construction dewatering waste to surface waters (including estuarine and ocean waters) that pose an insignificant threat to water quality in the Central Coast. Under this permit, discharges must comply with discharge specifications, receiving water and groundwater limitations, and monitoring and reporting requirements detailed in the permit.

### Santa Barbara County General Plan Conservation Element, Groundwater Resources Section

The Santa Barbara County General Plan Conservation Element, Groundwater Resources Section is intended to provide background information and policy direction for the conservation, development, and utilization of groundwater resources in Santa Barbara County. The specific goals, policies, actions, and development standards are intended to

facilitate improved coordination of groundwater supply and land use planning within the County.

***Environmental Determination:***

The following analysis considers the existing environmental setting and regulatory setting applicable to the proposed Project in determining whether the proposed Project would result in significant impacts related to water quality, drainage, groundwater supply, and flooding. Impacts are evaluated with respect to construction and operation of the proposed Project.

***a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?***

Impact: Less Than Significant

*Construction*

As discussed regarding geology and soils, demolition and removal of existing concrete and pavement would expose soils to wind and water erosion. Soil excavation required for construction of the 55-foot-wide digester, the CHP system, and associated piping would result in temporary stockpiling of soil pending backfill and/or export from the site. Approximately 6,600 cubic yards of soil would be excavated and 5,700 cubic yards would be backfilled, resulting in 900 cubic yards of soil export from the site. An equipment staging area would be created during construction in the front lawn of the WRRF. Grass in the staging area would be removed prior to construction or degraded due to use, resulting in removal of existing grass and exposure of underlying soils. Temporary soil exposure during construction would expose soils to wind and water erosion, which in turn could result in sedimentation of downstream receiving waters.

Non-sediment-related pollutants that are also of concern during demolition and construction relate to construction materials and non-storm water flows and include construction materials (e.g., paint, mortar); chemicals, liquid products, and petroleum products used in building construction or the maintenance of heavy equipment; and concrete-related pollutants.

As previously discussed, storm water runoff within the WRRF is captured internally. Storm water drains to on-site stabilization basins, where the water evaporates or flows to the main pump station for treatment through the entire wastewater treatment process, before being discharged to the Pacific Ocean approximately 1 mile offshore. However, storm water runoff from the western portion of the WRRF drains primarily as sheet flow toward Moffett Place, and then in turn drains south toward the Goleta Slough. Storm water runoff from portions of the site that do not drain internally would be subject to provisions of the Santa Barbara County Storm Water Management Program, Small MS4 Permit. This permit includes a Construction Site Storm Water Runoff Control Program, which requires the Permittee to develop, implement, and enforce a program to prevent construction site discharge of pollutants and impacts on beneficial uses of receiving waters. The program shall include, at a minimum, requirements for erosion and sediment controls, soils stabilization, dewatering, source controls, pollution prevention measures, and prohibited discharges.



In compliance with the MS4 Permit requirements, and regardless of whether areas of exposed soil drain internally or off-site, GSD's existing SWPPP would be updated to include an erosion and sediment control plan, to be implemented during construction. The plan would require implementation of BMPs.

Construction of the 55-foot-wide digester would require excavations that may encounter groundwater. Based on borings drilled at the site in December 2020, groundwater is present at a depth of approximately 57 feet below ground surface. However, groundwater was measured at a depth of 3 feet approximately 1,400 feet northeast of the Project site, on the east side of San Pedro Creek. This depth of 3 feet corresponds to an approximate elevation of 6 feet AMSL. Fluctuations in the level of groundwater may occur due to variations in the ground surface topography, subsurface stratification, rainfall, irrigation practices, groundwater pumping, tidal fluctuations, and other factors that may not have been evident at the time of field work (Ninyo & Moore 2021). Therefore, dewatering may be required during construction. In the event groundwater is present during completion of excavations for the digester or related infrastructure, dewatering would be completed in accordance with Central Coast RWQCB Order No. R3-2017-0042, NPDES No. CAG993001, Waste Discharge Requirements, NPDES General Permit for Discharges with Low Threat to Water Quality, which includes effluent limitations and discharge specifications that would prevent discharge of polluted groundwater from the site.

With compliance with the Santa Barbara County Storm Water Management Program, Small MS4 Permit, including site-specific BMPs to be established during demolition, excavations, and construction, as well as compliance with Central Coast RWQCB discharge requirements during excavation dewatering, the proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality. As a result, construction impacts to water quality would be less than significant.

#### *Operations*

As previously discussed, surface water quality at the Project site is regulated in accordance with the Santa Barbara County Storm Water Management Program, Small MS4 Permit. This permit would only apply to any areas of the site that do not drain internally to the treatment and disposal system, such as the proposed construction staging area. However, this area would be restored to existing conditions following construction and would not be used during operations. The Project design includes plans for civil grading to allow for the entire Project area to be included within the drainage areas that drain to on-site stabilization basins, where the water evaporates or flows to the main pump station for treatment through the entire wastewater treatment process and is discharged to the Pacific Ocean. As a result, the proposed Project would not violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality, and operational impacts to water quality would be less than significant.

***b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?***

Impact: Less Than Significant

*Groundwater Supplies*

Project construction would require water for dust suppression and soil compaction. Water would be provided either from an onsite fire hydrant or from reclaimed water generated at the treatment plant. In the event potable water is used from an on-site hydrant, this water would be provided by the Goleta Water District, which derives a portion of its water from the Central Subbasin of the Goleta Groundwater Basin. The Central Subbasin is adjudicated and the Goleta Groundwater Basin is designated as a very low to low priority basin under the 2014 Sustainable Groundwater Management Act. Similarly, hydrostatic testing completed on the proposed digester would utilize reclaimed water generated on-site. Groundwater would not be used for testing. Project operations would not require an increase in water demand. As a result, the Project would not substantially decrease groundwater supplies such that the Project may impede sustainable groundwater management of the basin and impacts would be less than significant.

*Groundwater Recharge*

Except for the western lawn area, the Project site is currently paved, impervious, and not susceptible to groundwater recharge. These areas would remain paved following construction. The pervious lawn area would be used as a construction staging area and would be restored to a lawn following construction. As a result, the Project would not substantially interfere with groundwater recharge such that the Project may impede sustainable groundwater management of the basin, and impacts would be less than significant.

- 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:***
- i. result in a substantial erosion or situation on- or off-site;***
  - ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site; and***
  - 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***

Impact: Less Than Significant

Construction of a new digester, CHP system, and biogas pretreatment system would occur in existing paved areas. Existing Digester 1, also in a paved area, would be decommissioned and may be repurposed for some other use. As a result, the proposed Project would not increase impervious surfaces and associated increased runoff. As previously discussed, storm water runoff within the WRRF is captured internally. The Project design includes plans for civil grading to allow for the entire Project area to be included within the drainage areas that drain to on-site stabilization basins, where the water evaporates or flows to the main pump station for treatment through the entire wastewater treatment process, before being discharged to the Pacific Ocean approximately 1 mile offshore. However, storm water runoff from the western portion of the WRRF drains primarily as sheet flow toward Moffett Place, and then in turn drains south toward the

Goleta Slough. An equipment staging area would be created during construction in the front lawn of the WRRF. The grass would be denuded during construction, resulting in a temporary increase in runoff pending project completion and revegetation of the lawn area. As described above, in compliance with the MS4 Permit requirements, GSD's existing SWPPP would be updated to include an erosion and sediment control plan, to be implemented during construction. The plan would require implementation of BMPs to reduce the volume and rate of temporary storm water runoff at the staging area during construction, thus preventing off-site flooding, erosive scour, and substantial additional sources of polluted runoff. As a result, drainage-related impacts would be less than significant.

***iv. Impede or redirect flood flows?***

Impact: No Impact

Portions of the WRRF, including solids stabilization basins 2 and 3 and the flow equalization basin, are within a 100-year flood hazard zone. However, none of the proposed Project construction areas are within the flood hazard zone. In addition, no portions of the WRRF are within a Tsunami Inundation Zone.

The entire WRRF is within a 500-year flood zone. Under Executive Order 11988, Floodplain Management, federal agencies funding and/or permitting critical facilities are required to avoid the 500-year floodplain or protect the facilities to the 500-year flood level (FEMA 2020). The WRRF is considered a critical facility; however, federal agencies would not be funding or permitting the proposed Project. Therefore, 500-year flood protection would not be required as part of the Project. As a result, proposed improvements would not impede or redirect flood flows and no impacts would occur.

***d) In flood hazard, tsunami or seiche zones, risk release of pollutants due to project inundation?***

Impact: Less Than Significant

The proposed Project improvements would not occur within a flood zone or tsunami run-up zone. Seiches are oscillations or sloshing in an enclosed body water because of strong seismically induced ground shaking. The WRRF is located adjacent to San Pedro Creek Channel, which would be susceptible to seiches in the event of a strong earthquake. However, the proposed Project improvements would be a minimum of 500 feet from the channel, with the solids stabilization basins and flow equalization basin separating the proposed improvements from the creek. Damage from seiches typically occurs immediately adjacent to water bodies during an earthquake. Based on the distance to proposed Project components, seiche impacts are unlikely. As a result, release of pollutants due to project inundation would not occur in association with the Project, and impacts would be less than significant.

***e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?***

Impact: Less Than Significant

As previously discussed, the area of proposed improvements would drain to on-site stabilization basins, where the water would evaporate or flow to the main pump station for

treatment through the entire wastewater treatment process, before being discharged to the Pacific Ocean, approximately 1 mile offshore. Discharge would be completed in accordance with an established wastewater discharge permit with the Central Coast RWQCB (Order No. R3-2017-0021, NPDES No. CA0048160). Runoff from the proposed staging area during construction would occur in accordance with the Santa Barbara County Storm Water Management Program, Small MS4 Permit, which would minimize off-site water quality impacts and prevent adverse impacts to beneficial uses, as established in the Central Coast RWQCB Basin Plan.

In addition, in the event potable water is used from an on-site hydrant for dust control and soil compaction, this water would be provided by the Goleta Water District, which derives a portion of its water from the Central Subbasin of the Goleta Groundwater Basin. The Central Subbasin is adjudicated, and the Goleta Groundwater Basin is designated as a very low to low priority basin under the 2014 SGMA. Hydrostatic testing completed on the proposed digester would utilize reclaimed water generated on-site. Groundwater would not be used for testing. Project operations would not require an increase in water demand. As a result, the proposed Project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan, and impacts would be less than significant.

***Cumulative Impacts:***

Cumulative development throughout the Goleta Valley would incrementally contribute to hydrology and water quality impacts. However, based on the analysis above, and with adherence to applicable Objectives and Policies found in the City of Goleta's and Santa Barbara County's General Plan/Local Coastal Land Use Plans, the Project's contribution to cumulative hydrology and water quality impacts would not be considerable, and cumulative impacts would be less than significant.

***Mitigation Measures:***

No mitigation is required.

**XI. Land Use and Planning**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XI. Land Use and Planning.</b> Would the project:				
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

***Existing Conditions:***

GSD is located in the unincorporated area of Santa Barbara County and is southwest of the boundary of the City of Goleta. GSD is located in the Eastern Goleta Valley Community Plan area and is also located within the coastal zone. The Project area is located both within the original jurisdiction of the California Coastal Commission and within the jurisdiction of the County’s Local Coastal Program. Therefore, the proposed Project is subject to the policies of the California Coastal Act and the County’s Coastal Land Use Plan. Within the Eastern Goleta Valley Community Plan, the site has a land use designation of Public Utility (UT) and zoning designation of Public Utility (PU). GSD is located primarily in an area with a mix of commercial and industrial uses; however, a small residential neighborhood is located approximately 500 feet to the northeast. The Santa Barbara Municipal Airport is located adjacent to the facility to the west and nearly adjacent to the north. Immediately adjacent to the facility to the east and south is additional space designated for public utilities which is currently not in use (vacant lots) and which is not owned or maintained by GSD.

***Environmental Determination:***

***a) Physically divide an established community?***

Impact: No Impact

The proposed Project would not divide an established community. The proposed Project site is already developed and part of the existing wastewater treatment plant area.

***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?***

Impact: Less Than Significant

The proposed Project is consistent with the purpose and intent of the Public Utilities zone and land use designation of the County of Santa Barbara. The proposed Project would be consistent with the development standards of the County’s Coastal Zoning Ordinance (Article II), including performance standards, height limits, and setbacks. Potentially significant impacts on biological resources and cultural resources could potentially be

inconsistent with the resource protection policies of the California Coastal Act and County's Coastal Land Use Plan and Eastern Goleta Valley Community Plan if they are not avoided and minimized. However, with implementation of mitigation measures for each of these issue areas, impacts would be reduced to less than significant levels, and therefore the Project would be consistent with these policies. All potential impacts that could be found inconsistent with relevant resource protection policies have been avoided and minimized to the maximum feasible extent.

***Mitigation Measures:***

No mitigation is required.

**XII. Mineral Resources**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XII. Mineral Resources.</b> Would the project:				
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Existing Conditions:**

The Project site overlies the La Goleta Gas Field, which also comprises the La Goleta Natural Gas Storage Facility. No oil and gas wells are located on-site. The closest well, located approximately 200 feet south of the site and classified as an idle observation well, is a component of the La Goleta Natural Gas Storage Facility, which is one of Southern California Gas Company’s naturally occurring underground storage reservoirs. The storage facility utilizes the porous sandstone of the Vaqueros Formation, at an average depth of 4,200 feet. The La Goleta Gas Field was originally discovered in 1929, in the search for new oil reserves, but was found to only contain natural gas. The Vaqueros Formation is used for cyclical injection and withdrawal of natural gas to help balance supply and demand. This subsurface sandstone reservoir is sealed by the impermeable shale of the Rincon Formation, which immediately overlies the Vaqueros Formation. The facility operates natural gas injection wells, native gas wells, and observation wells (CalGEM 2021, SoCalGas 2021).

The California Surface Mining and Reclamation Act (SMARA) of 1975 requires the State Geologist to classify land into mineral resource zones based on the known or inferred mineral resource potential of that land. The primary goal is to ensure that important mineral resources do not become inaccessible due to uninformed land use decisions. The Project site is classified as Mineral Resource Zone 3 (MRZ-3), which is an area containing mineral deposits, the significance of which cannot be evaluated from available data.

**Regulatory Setting:**

SMARA was enacted to promote conservation of the State’s mineral resources and to ensure adequate reclamation of lands following mining. Among other provisions, SMARA requires the State Geologist to classify land in California for mineral resource potential. The four categories include: MRZ-1, areas of no mineral resource significance; MRZ-2, areas of identified mineral resource significance; MRZ-3, area of undetermined mineral resource significance; and MRZ-4, area of unknown mineral resource significance.

The distinction between these categories is important for land use considerations. The presence of known mineral resources, which are of regional significance and possibly unique to that particular area, could potentially result in non-approval or changes to a given project if it were determined that those mineral resources would no longer be available for extraction and consumptive use. To be considered significant for the purpose of mineral land classification, a mineral deposit or a group of mineral deposits that can be mined as a unit must meet marketability and threshold value criteria adopted by the California State Mining and Geology Board. The criteria vary for different minerals depending on the following: 1) whether the minerals are strategic or non-strategic; 2) the uniqueness or rarity of the minerals; and 3) the commodity type category (metallic, industrial, or construction) of the minerals. The State Geologist submits the mineral land classification report to the State Mining and Geology Board, which transmits the information to the appropriate local governments that maintain jurisdictional authority in mining, reclamation, and related land use activities. Local governments are required to incorporate the report and maps into their general plans and consider the information when making land use decisions.

***Methodology:***

The following analysis considers the existing environmental setting and regulatory setting applicable to the proposed Project in determining whether the proposed Project would result in significant impacts related to mineral resources. As stated, to be considered significant for the purpose of mineral land classification, a mineral deposit or a group of mineral deposits that can be mined as a unit must meet marketability and threshold value criteria adopted by the California State Mining and Geology Board.

***Environmental Determination:***

***a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?***

Impact: Less Than Significant

Based on the distance to the nearest idle observation well, located 200 feet to the south of the WRRF, the proposed Project would have no impact on operations of the La Goleta Natural Gas Storage Facility. In addition, the Project site is classified as MRZ-3, which is an area containing mineral deposits, the significance of which cannot be evaluated from available data. As a result, the proposed Project would not 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, and less than significant impacts would occur.

***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?***

Impact: Less Than Significant

Similarly, the proposed Project would not 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. As a result, less than significant impacts would occur.

***Mitigation Measures:***

No mitigation is required.



**XIII. Noise**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XIII. Noise.</b> Would the project result in:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

***Existing Conditions:***

GSD is located adjacent to the Santa Barbara Municipal Airport, south of the main east-west runway and east of the north-south runways. Airport noise contour maps in the Program EIR on the Proposed Airport Master Plan for Santa Barbara Municipal Airport (July 2017) show that the site is within the 60-65 decibel (dB) Community Noise Equivalent Level (CNEL) contour of the airport.

The closest residential development to GSD property is a small number of residences in the City of Goleta’s industrial zoned area, located approximately 500 feet northeast of the GSD facility, from property line to property line. The existing residences are at least 1,200 feet from the proposed construction site. In addition, the Rancho Goleta mobile home park is located on the east side of Highway 217, with the closest residential mobile homes located approximately 1,530 feet from the eastern boundary of the GSD WRRF site.

***Noise Background***

Sound is caused by vibrations that generate waves of minute air pressure fluctuations in the air. Air pressure fluctuations that occur from 20 to 20,000 times per second can be detected as audible sound. The number of pressure fluctuations per second is normally reported as cycles per second or Hertz (Hz). Different vibrational frequencies produce different tonal qualities for the resulting sound. Sound level data is typically presented in terms of dB values. Decibel scales are a logarithmic index based on ratios between a

measured value and a reference value. In the field of atmospheric acoustics, decibel scales are based on ratios of the actual pressure fluctuations generated by sound waves compared to a standard reference pressure value. Human hearing varies in sensitivity for different sound frequencies. Several different frequency weighting schemes have been developed to approximate the way the human ear responds to noise levels or to account for the response of building materials to airborne vibrations and sound. The “A-weighted” decibel scale (dBA) is normally used to approximate human hearing response to sound.

Varying noise levels are often described in terms of the equivalent constant dB level. Equivalent noise levels ( $L_{eq}$ ) are used to develop single-value descriptions of average noise exposure over various periods of time. Such average noise exposure ratings often include additional weighting factors for annoyance potential due to time of day or other considerations. The  $L_{eq}$  data used for these average noise exposure descriptors are generally based on A-weighted sound level measurements, although other weighting systems are used for special conditions (such as blasting noise).

Average noise exposure over a 24-hour period is often presented as a CNEL. CNEL values are calculated from hourly  $L_{eq}$  values, with the  $L_{eq}$  values for the evening period (7 p.m. to 10 p.m.) increased by 5 dB and the  $L_{eq}$  values for the nighttime period (10 p.m. to 7 a.m.) increased by 10 dB to reflect the greater disturbance potential from evening and nighttime noises.

The Santa Barbara County Environmental Thresholds and Guidelines Manual has adopted a CNEL of 65 dBA as the land use compatibility limit for noise-sensitive land uses. Noise-sensitive land uses include single- and multifamily residential, mobile homes, dormitories, hotels, motels, hospitals, nursing and convalescent homes, public and private schools, libraries, churches, and places of public assembly. Additionally, the Santa Barbara County Municipal Code Section 40 limits nighttime noise to 60 dB 100 feet from the property boundary.

**Methodology:**

Sound is a logarithmic function of distance. To calculate volume at a specific distance, the following formula was used:

$$dB(x) = dB \text{ at } x \text{ meters} = \text{Reference Volume} - 20 \times \text{Log} \left( \frac{x}{\text{Reference Distance}} \right)$$

To add noise impacts together the following formula was used:

$$\text{Total } dB = \text{Log} \left( \sum_1^n 10^{\frac{dB(x)_n}{10}} \right)$$

To calculate  $L_{eq}$ :

$$dB_{eq}(x) = dB(x) + 10 \times \text{Log}(\text{Usage Factor}) + \text{FHWA } dBA \text{ Adjustment Factor}$$

Where the Usage Factor is a decimal percentage of the time a piece of equipment is used, and the Federal Highway Administration (FHWA) dBA Adjustment Factor is a constant based on values from the FHWA.

There can also be attenuation through losses to the ground. Losses to the ground are calculated with a “terrain coefficient” and account for the fact that concrete does not attenuate noise, grasses attenuate noise some (0.005 dbA/m), shrubs attenuate noise moderately (0.007 dbA/m), and wooded areas attenuate noise significantly (0.01 dbA/m).

***Environmental Determination:***

- a) ***Generation of 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?***

Impact: Less Than Significant

There will be construction noise associated with this project from construction equipment. Based on a noise model developed using the calculation methodologies shown above and the construction equipment in Table 2-3, using FHWA default noise generation for the type of equipment and load factors from CalEEMod, the construction noise should be considered less than significant.

The Santa Barbara County Municipal Code Section 40 limits nighttime noise to 60 dB 100 feet from the property boundary; however, construction will not occur during nighttime hours (10 p.m. to 7 a.m.). The County of Santa Barbara Environmental Thresholds and Guidelines Manual states: “In the planning of land use, 65 dB(A) Day-Night Average Sound Level is regarded as the maximum exterior noise exposure compatible with noise-sensitive uses unless noise mitigation features are included in project designs.”

The nearest sensitive receptor is at least 1,200 feet from the proposed construction area.

Table 3-12 shows that there is no significant impact on the nearest sensitive receptor from construction noise, based on the noise model described above.

**Table 3-12: Noise Impacts from Construction**

Construction Phases	Modeled Noise Level (L <sub>eq</sub> dBA) <sup>a</sup>	Significance Threshold (CNEL dBA) <sup>b</sup>	Exceeds Threshold (Yes/No)?
1	62	65	No
2	62	65	No
3	61	65	No
4	60	65	No
5	60	65	No
6	60	65	No

a) Includes existing street traffic and ambient noise sources (cumulative impacts), which is assumed to be 60 dBA.

b) Refer to applicable City or County General Plan Noise Element and Municipal Code Noise Ordinance for thresholds

The digester will not be a significant source of noise.

The proposed engine will be a permanent source of new noise. The engine specifications indicate that the volume at the surface of the engine will be 104 dBA or less. However, a feature of the proposed Project is the installation of an enclosure for the engine, which will

abate noise. The enclosure is included by the manufacturer and is typical of engine installations in order to reduce noise, improve weather resistance of the engine, and improve safety surrounding the engine. Outside the enclosure, the noise is specified by 2G as being 70 dBA. Based on this, the following calculations will assume that the reference volume (within 1 foot of the engine) is 70 dBA.

All results presented in Table 3-13 are assuming that the reference distance used in the specifications is 1 foot (since it is designated “surface” volume), and assuming a worst-case scenario of no insertion losses (line of sight to the engine) and no terrain losses (concrete or asphalt surfaces).

**Table 3-13: Noise Impacts from Engine Operation**

Distance (feet)	Volume (dB)
1	70
50	36
100 feet beyond property line	18

The proposed engine will comply with both the Santa Barbara County Municipal Code Section 40 and the County of Santa Barbara Environmental Thresholds and Guidelines Manual.

Since there is noise associated with the Project, but the construction and operational noise will be below applicable thresholds, the proposed Project will not contribute significantly to a temporary or permanent increase in ambient noise levels in the vicinity of the Project. The impacts will be less than significant.

***b) Generation of excessive groundborne vibration or groundborne noise levels?***

Impact: Less Than Significant

There are no expected significant sources of vibration permanently or during construction. According to the California Department of Transportation Vibration Guidance Manual (2013), intermittent sources of vibration are barely perceptible at a peak particle velocity of 0.04 inches per second and distinctly perceptible at 0.25 inches per second. Building damage is possible (for extremely fragile buildings) at 0.08 inches per second. Modern industrial buildings do not experience damage until 0.5 inches per second.

According to an EIR completed for the Placer County Conservation Program and the Federal Transit Administration’s Transit Noise and Vibration Impact Assessment, the only equipment that could generate vibrations strong enough to damage industrial buildings are impact or vibratory pile drivers. According to those same sources, this possibility diminishes at a distance of 75 feet (peak particle velocity of 0.29 inches per second or lower).

A “distinctly perceptible” vibration at for this equipment is not expected at distances over 100 feet for this equipment. A “barely perceptible” impact may be noticed to about 200 feet.

However, this equipment is not expected to be present, and if it is, it will not be within 75 feet of any buildings, nor could it cause a public nuisance due to the distance to potential receptors.

The engine and the digester are not expected to create vibration on an ongoing basis. There will be a less than significant vibrational impact.

- 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 level?*

Impact: No Impact

The proposed Project is within the airport land use planning area of Santa Barbara Municipal Airport. Airport noise contour maps in the Program EIR on the Proposed Airport Master Plan for Santa Barbara Municipal Airport (July 2017) indicate that the site is within the 60-65 dB CNEL contour of the airport. 65 dBA is allowable under the ambient noise limits set by the County of Santa Barbara for sensitive receptors, is below the OSHA limit of 90 dBA (over an 8-hour day), and is even below the slightly more stringent National Institute for Occupational Safety and Health (NIOSH) recommendation of 85 dBA (over an 8-hour day). Wastewater treatment facilities are considered industrial land uses, and the airport-related noise is below the permissible industrial noise level regulated by OSHA. Additionally, although the site is not a noise-sensitive land use, existing airport operations do not exceed the sensitive land use limits set by the county of Santa Barbara. Finally, this is an existing facility with an existing workforce, and the proposed Project does not change that workforce's proximity to the airport or the headcount at the facility. As a result, the airport noise is an existing condition, and the Project will not result in additional houses, residents, or workers in this area. Therefore, the proposed Project would have no impact in relation to airport noise exposures.

***Mitigation Measures:***

No mitigation is required.

**XIV. Population and Housing**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XIV. Population and Housing.</b> Would the project:				
a) Induce substantial unplanned 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)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

***Existing Conditions:***

GSD currently operates a WRRF with a permitted wastewater throughput capacity of 9.6 MGD. Currently, GSD has 35 employees, of which about half operate the WRRF.

***Environmental Determination:***

***a) Induce substantial unplanned 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)?***

Impact: No Impact

The proposed Project would not induce population growth in the Project area. There are no additional employees expected as a result of the Project. The proposed Project will not increase the permitted capacity of the WRRF and hence will not influence population growth. Additionally, the proposed Project will be located at the existing facility and would not require extension, or increase the capacity, of existing off-site infrastructure. The proposed Project would not stimulate population growth, as there are no new employees associated with the Project. Therefore, no impact on population growth would be generated by the proposed Project.

***b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?***

Impact: No Impact

The proposed Project would not displace existing housing or people, necessitating the construction of replacement housing elsewhere. No housing currently exists on the site, and all proposed Project improvements are within the current WRRF property. No impact would occur.

***Mitigation Measures:***

No mitigation is required.

**XV. Public Services**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XV. Public Services.</b> Would the project:				
a) 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:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

***Existing Conditions:***

Fire protection services are provided to GSD by the City of Santa Barbara Fire Department and the Santa Barbara County Fire Department. The nearest responder to the site is Fire Station 8, located at 40 Hartley Place, approximately 0.5 miles from the proposed Project site. The Goleta Police Department is about 3.4 miles from the facility, and the nearest California Highway Patrol office is about 1.3 miles from the Project site.

The nearest park is Goleta Beach Park, about 1,300 feet from GSD’s fenceline.

***Environmental Determination:***

***a) 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:***

***Fire Protection?***

***Police Protection?***

***Schools?***

***Parks?***

***Other Public Facilities?***

Impact: Less Than Significant

The proposed Project would not result in significant adverse impacts on fire protection. Fire protection services are provided by the City of Santa Barbara Fire Department and the Santa Barbara County Fire Department. The nearest responder to the proposed Project site is Fire Station 8, located at 40 Hartley Place, approximately 1.5 miles from the proposed Project site. The proposed Project would not result in an increase in residential units and population size and would therefore not affect response times.

The proposed Project would not result in a net increase of residential units or employment opportunities that could increase population and therefore would not result in a population increase within the service area, negating the need for a new police station or improvements to the existing police station servicing the area.

The proposed Project would not result in substantial adverse impacts to existing schools or necessitate the need for new schools. The proposed Project adds no new employees, so there would be no demand for additional public services and facilities such as schools.

The proposed Project would not result in impacts to existing parks, and since there is no increase in population associated with the Project (i.e., no new employees), it will not necessitate the need for new parks. There is no impact to fire protection facilities, police facilities, schools, or parks.

The proposed Project would result in substantial physical impacts associated with physically altering an existing municipal WRRF. However, the proposed Project allows for firm digestion capacity at the facility and allows the facility to recover additional energy from the digester gas produced. The proposed Project improves the existing WRRF. No adverse impacts to other public facilities would be generated by the proposed Project. Impacts can be characterized as positive.

There are no negative impacts to public facilities.

***Mitigation Measures:***

No mitigation is required.



**XVI. Recreation**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVI. Recreation.</b>				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

***Existing Conditions:***

No recreation facilities are located within or near the GSD facility, and none are included in the proposed Project. The Goleta Beach Park is located 0.3 miles south of the WRRF.

***Environmental Determination:***

***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?***

Impact: No Impact

Implementation of the proposed Project would not alter the use of nearby recreational facilities. There are no new employees associated with the Project, and the proposed Project only includes improvements within the boundaries of the current facility. Therefore, there would be no impacts to recreation or parks.

***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?***

Impact: No Impact

The proposed alterations to the GSD facility include a new digester and CHP engine and would not require the construction or expansion of recreational facilities. Therefore, there are no impacts.

***Mitigation Measures:***

No mitigation is required.

**XVII. Transportation**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVII. Transportation.</b> Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict or be inconsistent with CEQA Guidelines §15064.3, subdivision (b)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Existing Conditions:**

Currently, GSD has 35 employees, of which about half operate the WRRF.

**Environmental Determination:**

**a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?**

Impact: Less Than Significant Impact

During construction, six trucks per day and reasonable construction worker trips (estimated by CalEEMod at 13 trips per day) should be considered less than significant compared to existing area traffic, which includes airport traffic. There is no long-term increase in traffic, as there are no new permanent employees. Impacts will be less than significant.

**b) Conflict or be inconsistent with CEQA Guidelines § 15064.3, subdivision (b)?**

Impact: Less Than Significant Impact

Since there will be no new employees, there is no long-term impact on vehicle miles traveled (VMT), and this Project does not conflict with, nor is it inconsistent with, CEQA Guidelines Section 15064.3(b). Additionally, an increase in the shipment of biosolids that would lead to additional VMT is not anticipated. Since this Project will generate less than 110 average daily trips, this Project falls into the “Small Project” screening category of the Santa Barbara County Environmental Thresholds and Guidelines Manual and is assumed to have less than significant VMT impacts.

*c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?*

Impact: No Impact

There will be no new roadway design features or expected incompatible uses. There will be no impact on transportation hazards.

*d) Result in inadequate emergency access?*

Impact: No Impact

There are no changes which will alter the efficacy of emergency access. There is no impact from this Project.

***Mitigation Measures:***

No mitigation is required.

**XVIII. Tribal Cultural Resources**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XVIII. Tribal Cultural Resources.</b>				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code §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:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) 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	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) 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 §5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Existing Conditions:**

*Ethnohistoric Context*

When the Spanish first started to arrive in A.D. 1542, the people living in the Santa Barbara region, collectively known today as the Chumash, consisted of a set of related ethnolinguistic groups occupying a territory that spanned from Morro Bay in the north, south to Malibu on the coast, and inland to encompass the interior South Coast Range and the northwest Transverse Range, including the Santa Ynez River Valley, the Carrizo Plain, the Cuyama Valley, and the San Emigdio Hills. The language these people spoke is considered an isolate (Goddard 1996), distinct from the languages spoken by their neighbors, the Salinan, Yokuts, Kitanemuk, Tataviam, and Tongva (Gabrielino-

Fernandeño). Internally, there was considerable diversity, such that not all of the regional dialects were mutually intelligible. Today, the names for these different ethnolinguistic groups come mainly from their associations with different Mission territories: the Obispeño in the north were notably distinct from a group called the Central Chumash, which consisted of the Purisimeño, Ynezeño, Barbareño, and Ventureño. Both of these groups (Obispeño and Central Chumash) spoke languages that were in turn distinct from those spoken on the northern Channel Islands, typically grouped together under the heading of Island Chumash. Even this linguistic taxonomy masks some of the historically documented internal diversity that includes regional dialectic differences such as the Emigdiano, Castec, Matilija, Mugu, and Malibu of the Central Chumash and the Cruzeño, Roseño, and Migueleño of the Island Chumash (Kroeber 1925; Grant 1978b, 1978a; Golla 2011). The current Project area and the broader vicinity of the Goleta Lagoon was occupied historically by speakers of Barbareño Central Chumash, today represented by the Barbareño/Ventureño Band of Mission Indians, headquartered in Ojai.

What we know of these people comes, in part, from the rich written accounts of a variety of sources, the earliest of which are those of the Spanish explorers to the Santa Barbara Channel and mainland, namely Cabrillo in 1542 and Vizcaíno in 1602 (Wagner 1929; Brown 1967). These observations were expanded by the accounts written during early efforts to establish evangelical missions (and therefore royal territory) in Alta California, namely by Portolá in 1769, de Anza in 1776, and, to a lesser degree, Garcés in 1776 (Coues 1900; Bolton 1927; Gamble 2008; Priestley 1937). These accounts were further expanded by the observations and managerial records of the mission administrators for a period of about 60 years (Geiger 1969; Geiger and Meighan 1976; Johnson 1988, 1982). After that, Euroamerican interest in Native American life made it possible for the native views of their own history and culture to enter into the written record, primarily in this case through ethno-historic documentation of Chumash beliefs, folk tales, music, customs, and lifeways (e.g., Blackburn 1975; Hudson et al. 1981; Harrington 1942). This forms perhaps the richest body of information that we have about the Chumash; further development of this understanding continues today, incorporating contemporary Chumash identity, concerns, interpretations, research, and politics.

The written records and accounts of Chumash life reveal a variety of things that have been of paramount importance to archaeologists for many decades. This includes accounts of what people ate and how they acquired it, how they made various elements of material culture, and how they used it (e.g., Hudson and Blackburn 1983, 1979, 1985, 1986). It also includes ideas about the landscape, knowledge of the plants and animals that live in it, and knowledge of how to manage that landscape, as well as accounts of how social life was structured and how hierarchy and power were perceived, imagined, and negotiated by individuals. The ethnohistories also contain a rich account of the structure of hierarchy within Chumash life, including ideas about how money, exchange, and territory, along with the management and manipulation of those elements, fed into the structures of social power.

It is this body of knowledge that has commanded the lion's share of archaeological attention since the 1980s. Of particular importance to archaeologists of the Santa Barbara Channel has been the effort to explain the evolution of the kinds of social and political complexity revealed in the rich ethnohistoric records of the Chumash (C.D. King 1976;

L.B. King 1969). Attention is paid to how people acquired and controlled resources and how resources from different environments (namely the islands, the mainland coast, and the interior) were moved across different boundaries and networks. This involves a detailed understanding of how goods and services were transported not only between different aspects of the Chumash cultural sphere, but also between the Chumash and the people of the Central Valley, the Sierra Nevada, the South Coast, and the Desert Interior. Considerable ethnographic detail exists about the nature of market-based exchange, the use of shell-bead money, conscious control of inflation, the role of intermediaries in inter-group exchange, trading parties from distant lands, and the kinds of goods transported from different areas, all of which play a significant role in both the interpretation of the archaeological record and the design of archaeological research. Indeed, synthetic accounts of the ethnographic record occasionally offer insights about the archaeological patterns one might expect of the Chumash interaction sphere (Gamble 2008; C.D. King 1976; Johnson 1988, 1982).

Interests in the evolution of complex society in the Chumash world have played a disproportionate role in the collective efforts of archaeologists over the past several decades. Therefore, it is not surprising that the majority of archaeological research has been focused mainly on the late prehistoric record and on understanding the evolution of the many things the Europeans were able to observe or record of Chumash life. However, as with any interpretation of the past informed by ethnohistoric observation, interpreters of the Chumash and their ancestors must be cautious about the ethnographer's interpretive agency and its historical context (Haley and Wilcoxon 1997, 1999; Gill, Fauvelle, and Erlandson 2019). Contemporary re-analysis of historical observations may stimulate novel insights that engender novel directions in archaeological research.

***Regulatory Setting:***

***Assembly Bill 52***

Assembly Bill (AB) 52 of 2014 amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3. AB 52 established that tribal cultural resources must be considered under CEQA and also provided for additional Native American consultation requirements for the lead agency. PRC Section 21074 describes a tribal cultural resource as a site, feature, place, cultural landscape, sacred place, or object that is considered of cultural value to a California Native American tribe. A tribal cultural resource (TCR) is:

- On the California Register of Historical Resources (CRHR) or a local historic register;
- Eligible for the CRHR or a local historic register; or
- 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 PRC Section 5024.1.

AB 52 formalizes the lead agency tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the Project area, including tribes that may not be federally

recognized. Lead agencies are required to begin consultation prior to the release of a Negative Declaration, MND, or EIR.

Section 1 (a)(9) of AB 52 establishes that “a substantial adverse change to a tribal cultural resource has a significant effect on the environment.” Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures “capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource.” Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects on TCRs, the consultation shall include those topics [PRC Section 21080.3.2(a)]. The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted [PRC Section 21082.3(a)].

***Environmental Determination:***

*Native American Heritage Commission Sacred Land Files Request*

A search of the Native American Heritage Commission’s (NAHC’s) Sacred Land File was requested on April 13, 2020, and was conducted on April 14, 2020 by Sarah Fonseca, Cultural Resource Analyst, to determine the presence of any Native American cultural resources within the proposed Project site (see Confidential Appendix F).

*Assembly Bill 52 Consultation*

The Project is subject to compliance with AB 52 (PRC Section 21074), which requires consideration of impacts to TCRs as part of the CEQA process and that the lead agency notify California Native American tribal representatives (that have requested notification) who are traditionally or culturally affiliated with the geographic area of the proposed Project.

***Results:***

*Native American Heritage Commission Sacred Land Files Request*

The Sacred Land File search results were positive for known Native American heritage resources within the proposed Project site. The NAHC identified nine Native American individuals who potentially have specific knowledge on the cultural resources identified within the Project site that could be at risk. GSD sent notification letters via regular certified mail on May 1, 2020, to the nine Native American representatives identified by the NAHC (see Confidential Appendix F). Follow-up phone calls were made on June 1, 2020, and June 29, 2020.

*Assembly Bill 52 Consultation*

The NAHC identified nine Native American individuals who potentially have specific knowledge on the cultural resources identified within the Project site that could be at risk. GSD sent notification letters via regular certified mail on May 1, 2020, to the nine Native American representatives identified by the NAHC (see Confidential Appendix F). Follow-up phone calls to those individuals who did not respond were made on June 1, 2020, and June 29, 2020.

Three Native American representatives have responded to the notification letter: Fred Collins of the Northern Chumash Tribal Council, Freddie Romero of the Santa Ynez Band of Chumash Indians (SYBCI), and Eleanor Arrellanes of the Barbareño Band of Chumash Indians (BBCI). Mr Collins responded on May 11, 2020, via e-mail and declined consultation, stating that “NCTC supports the local Tribal Governments recommendations, our focus is in San Luis Obispo County.” Mr. Romero responded via e-mail May 13, 2020, requesting formal consultation. GSD responded to Mr. Romero’s request on May 13, 2020, confirming receipt and stating that further communication was forthcoming. Based on mutual agreement, a formal consultation meeting occurred on June 10, 2020, between GSD and Mr. Romero via Zoom. Ms. Heather McDaniel McDevitt of Dudek, GSD’s archaeological consultant, was present to provide any information regarding the ongoing cultural investigation. On behalf of the SYBCI, Mr. Romero expressed concerns regarding impacts to TCRs located within the GSD Project site and requested that the tribe be notified throughout the design and implementation process of the proposed Project. Mr. Romero also asked various questions about the nature of the proposed Project as well as the results of the cultural investigation. Each question was answered to the best of GSD’s and the consultant’s knowledge and the available information at the time of the meeting. Additionally, an e-mail was received by GSD on June 15, 2020, from Ms. Susan Arakawa, Administrative Assistant for the SYBCI Elders’ Council and Culture Department, that provided an attached letter requesting formal consultation. GSD responded on June 15, 2020, confirming receipt and providing a statement regarding GSD’s commitment to continue consultation with Mr. Romero.

Ms. Arrellanes responded via e-mail May 14, 2020, requesting formal consultation. GSD responded to Ms. Arrellanes’s request on May 14, 2020, confirming receipt and stating that further communication was forthcoming. Based on mutual agreement, a formal consultation meeting occurred on June 16, 2020, between GSD and Ms. Arrellanes via Zoom. Ms. Heather McDaniel McDevitt of Dudek, GSD’s archaeological consultant, was also present to provide any information regarding the ongoing cultural investigation. On behalf of the BVBMI, Ms. Arrellanes expressed concerns regarding impacts to TCRs and the area, which she stated is very archaeologically sensitive, located within the GSD Project site. Ms. Arrellanes requested that the tribe be notified throughout the design and implementation process of the proposed Project. Ms. Arrellanes also asked various questions about the nature of the proposed Project as well as the results of the cultural investigation. Each question was answered to the best of GSD’s and the consultant’s knowledge and the available information at the time of the meeting.

The formal consultation process pursuant to AB 52 between GSD and the tribal entity of the SYBCI has been completed and closed. The formal consultation process pursuant to AB 52 between GSD and the tribal entity of the BBCI is ongoing as of the submission of this document. Any change in the status of each AB 52 process will be updated as appropriate. All communication that has occurred in support of the AB 52 Tribal consultation process is summarized in Table 3-14.



**Table 3-14: Native American Consultation Summary**

Contact Name	Contact Dates/Method	Response	Date Consultation Closed
<p>SYBCI, Kenneth Kahn, chairperson</p>	<p>May 1, 2020: Letter to Kenneth Kahn; signed certified confirmation receipt of delivery on file</p>	<p>May 13, 2020 – Mr. Freddie Romero, representative for SYBCI, responded via e-mail to Notification Letter and requested formal consultation. Mr. Steve Wagner, GSD, responded on May 13, 2020, confirming receipt.</p> <p>June 10, 2020 – consultation meeting occurred between GSD and Mr. Romero of SYBCI. SYBCI expressed concerns regarding impacts to TCRs located within the GSD Project site and requested that the tribe be notified throughout design and implementation process.</p> <p>June 15, 2020 – Ms. Susan Arakawa, Administrative Assistant for SYBCI Elders’ Council and Culture Department, provided attached letter via e-mail requesting formal consultation. GSD responded June 15, 2020, confirming receipt and commitment to continue consultation with Mr. Romero.</p> <p>June 25, 2020 – Mr. Romero emailed Mr. Wagner to confirm receipt of the cultural report and to communicate that he agreed with the findings, that the ground disturbing activities should be monitored by an archaeologist and Native American representative. Mr. Romero also requested that any cultural materials recovered during ground disturbing activities be buried within the archaeological site.</p> <p>September 22, 2020 – Mr. Romero emailed GSD providing the tribe’s monitoring contract template and contact information for the tribe’s monitoring supervisor/project manager.</p> <p>September 23, 2020 – GSD e-mailed Mr. Romero providing the final iteration of the mitigation measures for the Project to confirm that the tribe is in agreement.</p>	<p>Consultation formerly closed on September 23, 2020</p>

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
Goleta Sanitary District

Contact Name	Contact Dates/Method	Response	Date Consultation Closed
		September 23, 2020 – Mr. Romero responded and confirmed that the Tribe is in agreement with the final iteration of mitigation measures.	
BVBMI, Julie Lynn Tumamait-Stenslie, Chair	May 1, 2020: Letter to Julie Lynn Tumamait Stenslie; signed certified confirmation receipt of delivery on file; follow-up phone calls on June 1 and 29, 2020	No response	N/A
BVBMI, Patrick Tumamait, Chair	May 1, 2020: Letter to Patrick Tumamait; signed certified confirmation receipt of delivery on file; follow-up phone calls on June 1 and 29, 2020	No response	N/A
BBCI, Eleanor Arrellanes	May 1, 2020: Letter to Eleanor Arrellanes; signed certified confirmation receipt of delivery on file	<p>May 14, 2020 – Ms. Eleanor Arrellanes responded via e-mail to Notification Letter and requested formal consultation. GSD responded to request on May 14, 2020, confirming receipt.</p> <p>June 16, 2020 – consultation meeting occurred between GSD and Ms. Arrellanes. Ms. Arrellanes expressed concerns regarding impacts to TCRs located within the GSD Project site and requested that she be notified throughout design and implementation process.</p> <p>November 14, 2021 – Ms. Arrellanes emailed Ms. McDaniel McDevitt (Dudek) asking if there are any updates with the Project.</p> <p>November 18, 2021 – Ms. McDaniel McDevitt responded that a cultural report will be provided once available.</p> <p>March 8, 2022 - Ms. McDaniel McDevitt provided Ms. Arrellanes a copy of the cultural report</p>	Ongoing

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
Goleta Sanitary District

Contact Name	Contact Dates/Method	Response	Date Consultation Closed
BVBMI, Raudel Joe Banuelos	May 1, 2020: Letter to Raudel; signed certified confirmation receipt of delivery on file; follow-up phone calls on June 1 and 29, 2020	No response	N/A
Coastal Band of the Chumash Nation, Julio Quair, Chair	May 1, 2020: Letter to Julio Quair; signed certified confirmation receipt of delivery on file; follow-up phone calls on June 1 and 29, 2020	No response	N/A
Coastal Band of the Chumash Nation, Gino Altamirano, Chair	May 1, 2020: Letter to Gino Altamirano; signed certified confirmation receipt of delivery on file; follow-up phone calls on June 1 and 29, 2020	No response	N/A
Northern Chumash Tribal Council, Fred Collins, Spokesperson	May 1, 2020: Letter to Spokesperson	May 11, 2020 – Mr. Collins responded via e-mail to Notification Letter and declined consultation due to the location being out of territory.	N/A
San Luis Obispo County Chumash Council, Mark Vigil, Chief	May 1, 2020: Letter to Mark Vigil; signed certified confirmation receipt of delivery on file; follow-up phone calls on June 1 and 29, 2020	No response	N/A

- e) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code § 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:*
- i. 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)*

Impact: Less Than Significant with Mitigation Incorporated

The proposed Project site exists within the archaeological site CA-SBA-46, a site with both historic and prehistoric components and the location of the former Barbareño Chumash village Helo'. This site has been studied by archaeologists at length both prior to and after a large portion of the site was used to infill the Goleta Slough in preparation for what was then a navy airport (now Santa Barbara Municipal Airport). Despite the disturbance, intact cultural deposits have been identified in the last 80 years. Although not formally listed on either the CRHR or the National Register of Historic Resources, the site meets the criteria of historically or culturally significant pursuant to PRC Section 5024.1(g). Based on the proposed ground disturbing activities, the Project would cause a substantial adverse change in the significance of a historical resource pursuant to Section 15064.5, as the proposed activities would materially alter in an adverse manner those physical characteristics of the historical resource that convey its eligibility for inclusion in the CRHR. Previous archaeological testing and excavation efforts have identified intact deposits within the proposed Project's general area. Archaeological testing and excavations conducted in the past 30 years at CA-SBA-46 include a facility-wide significance evaluation undertaken in 1985 by SRS. The results of the survey identified the integrity and variability of remaining cultural deposits within CA-SBA-46 and categorized the variability into five density levels: Level I – 30,140.0 grams per cubic meter; Level II – 1,242.9 grams per cubic meter; Level III – 229.3 grams per cubic meter; Level IV – 34.1 grams per cubic meter; and Level V – no A Horizon present. Generally, the highest densities of shellfish, animal bone, stone tools, waste flake debitage, and stone tools were found in the southeastern corner of the GSD WRRF and extremely low densities in the western portion of the GSD WRRF.

The proposed Project elements would all exist within the Level III density area with the exception of approximately 5% of the new Digester 4. During the preliminary design stage of the proposed Project, the new Digester 4 was minimized in its horizontal impact, resulting in it extending only slightly on its eastern boundary into the Level II density area. The proposed Project redesign would avoid the potential for disturbing areas of CA-SBA-46 with high diverse densities of cultural resources identified during the previous significance evaluation (SRS 1985) and the previous data recovery mitigation excavations conducted in the 1980s through 1990s. However, there still remains the possibility of encountering concentrations of cultural remains within areas of moderate, low, or no cultural materials, as well as inadvertently encountering isolated artifacts or human remains within previously disturbed soils. In the event that unanticipated archaeological resources are encountered during Project implementation, impacts to these resources could be potentially significant.

The mitigation measures in Section 3.5.3 have been created to minimize impacts to cultural resources to less than significant. Implementation of MM-CUL-1 would ensure data recovery in areas of high to moderate density and variability possessing data potentially capable of providing information about the prehistoric and historic periods in this area; MM-CUL-2 would establish a program of treatment and mitigation in case of an inadvertent discovery of cultural resources during ground-disturbing phases and provide for the proper identification, evaluation, treatment, and protection of any cultural resources throughout the duration of the proposed Project; MM-CUL-3 would ensure the preparation and implementation of a WEAP; MM-CUL-4 would ensure that a qualified archaeologist is retained to monitor all initial ground disturbing activities and to respond to any inadvertent discoveries during Project construction; and MM-CUL-5 would ensure the proper treatment and protection of any inadvertent discovery of cultural resources, including human remains and burial artifacts, and that all construction work occurring within 50 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards for Archaeology, can evaluate the significance of the find. Thus, potentially significant impacts to archaeological resources would be reduced to less than significant levels with MM-CUL-1 through MM-CUL 5 incorporated.

- ii. 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 § 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code § 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.*

Impact: Less Than Significant with Mitigation Incorporated

The Project is subject to compliance with AB 52 (PRC Section 21074), which requires consideration of impacts to TCRs as part of the CEQA process and requires lead agencies to provide notification of proposed projects to California Native American tribal representatives that have requested such notifications. Through tribal consultation and cultural resource investigations, TCRs have been identified within the proposed Project site. The following cultural mitigation measures (Section 3.5.3) and TCR mitigation measures (Section 3.5.5) have been created in consultation with interested tribes to minimize impacts to TCRs to less than significant. Implementation of MM-TCR-1 would ensure involvement of consulting tribe(s) in the WEAP training of all Project personnel to ensure awareness of the appropriate procedures and protocols they must follow in the event tribal cultural resources are inadvertently discovered; MM-TCR-2 would ensure that consulting tribe(s) are retained to monitor all initial ground disturbing activities and archaeological excavations; and MM-TCR-3 would ensure the proper treatment and protection of any inadvertent discovery of TCRs. Additionally, implementation of MM-CUL-2 would establish a program of treatment and protection in the case of an inadvertent discovery of human remains throughout the duration of the proposed Project; MM-CUL-3 would ensure the preparation and implementation of a WEAP to ensure all Project personnel are aware of the appropriate procedures and protocols they must follow in the event human remains are inadvertently discovered; MM-CUL-4 would ensure that a qualified archaeologist is retained to monitor all initial ground disturbing activities and to

respond to any inadvertent discoveries during Project construction; and MM-CUL-5 would ensure the proper treatment and protection of any inadvertent discovery of human remains and burial artifacts. Thus, potentially significant impacts to TCRs would be reduced to less than significant levels with MM-TCR-1 through MM-TCR-3 incorporated in concert with the implementation of MM-CUL-1 through MM-CUL-5.

***Cumulative Impacts:***

Cumulative impacts on TCRs consider whether impacts of the proposed Project together with other related projects identified within the vicinity of the Project site, when taken as a whole, substantially diminish the number of TCRs within the same or similar context. Cumulative projects may require extensive excavation in tribally/culturally sensitive areas and thus may result in adverse effects to known or previously unknown inadvertently discovered TCRs. There is the potential for accidental discovery of other TCRs by the proposed Project or by cumulative projects. Because all significant TCRs are unique and non-renewable, all adverse effects or negative impacts contribute to a dwindling resource base. Through implementation of MM-CUL-1 through MM-CUL-5 and MM-TCR-1 through MM-TCR-3, the project-level impact to TCRs would be reduced to less than significant.

Other individual projects occurring in the vicinity of the Project site would also be subject to the same CEQA requirements as the proposed Project, and any impacts to TCRs would be mitigated, as applicable. These determinations would be made on a case-by-case basis, and the effects of cumulative development on TCRs would be mitigated to the extent feasible in accordance with CEQA, AB 52, and other applicable legal requirements. Therefore, impacts on archaeological resources would not be cumulatively considerable with mitigation incorporated (MM-CUL-1 through MM-CUL-5 and MM-TCR-1 through MM-TCR-3).

***Mitigation Measures:***

Please refer to Section 3.5.5 to review the TCR mitigation measures. After implementation of Mitigation Measures MM-CUL-1 through MM-CUL-5 and MM-TCR-1 through MM-TCR-3, impacts to TCRs would be less than significant.

**XIX. Utilities and Service Systems**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XIX. Utilities and Service Systems.</b> Would the project:				
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the waste water 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Existing Conditions:**

The Goleta Water District is responsible for supplying water within the City of Goleta and for ensuring that the delivered water quality meets applicable California Department of Health Services standards for drinking water. Reclaimed water produced at the GSD WRRF is used for all irrigation and plant processes. The proposed Project site is in a developed area of Santa Barbara County, which contains an existing storm water collection and conveyance system.

### ***Regulatory Setting***

This regulatory setting section focuses on the regulations dealing with solid waste, because that subtopic in this section was found to have the greatest potential for impacts. Water quality relations are discussed in Section 3.4.X.

#### *State*

##### Integrated Solid Waste Management Act of 1989 or Assembly Bill 939

Pursuant to the California Integrated Solid Waste Management Act of 1989, all jurisdictions in California are required to reduce the amount of solid waste disposed in landfills. AB 939 required a reduction of 25% by 1995 and 50% by 2000. Contracts that include work that will generate solid waste, including construction and demolition debris, have been targeted for participation in source reduction, reuse, and recycling programs. The project proponent is urged to manage solid waste generated by the work to divert waste from disposal in landfills (particularly Class III landfills) and maximize source reduction, reuse, and recycling of construction and demolition debris.

##### Public Resources Code Section 41820.5 through 41822

PRC Sections 41820.5 through 41822 require jurisdictions to submit a report to the California Department of Resources Recycling and Recovery (CalRecycle) summarizing their progress in reducing solid waste. The report must contain a variety of information, such as calculations of annual disposal reduction, a summary of progress made in implementing the source reduction, recycling element, and household hazardous waste element, and other information relevant to waste reduction and diversion.

##### Senate Bill 1383

SB 1383, approved November 3, 2020, and effective January 1, 2022, establishes targets to achieve a 50% reduction in the level of the statewide disposal of organic waste by 2020 and a 75% reduction by 2025. The law provides CalRecycle the regulatory authority required to achieve the organic waste disposal reduction targets and establishes an additional target that no less than 20% of edible food that is currently disposed of be recovered for human consumption by 2025.

##### Assembly Bill 341

Since the passage of AB 939, diversion rates in California have reached approximately 65%, the statewide recycling rate is approximately 50%, and the beverage container recycling rate is approximately 80%. In 2011, the State passed AB 341, which established a policy goal that a minimum of 75% of solid waste must be reduced, recycled, or composted by the year 2020. The State provided the following strategies to achieve that 75% goal:

- Moving organics out of the landfill;
- Expanding the recycling/manufacturing infrastructure;
- Exploring new approaches for State and local funding of sustainable waste management programs;
- Promoting State procurement of post-consumer recycled content products; and



- Promoting extended producer responsibility.

To achieve these strategies, the State recommended legislative and regulatory changes, including mandatory organics recycling, solid waste facility inspections, and revised packaging. With regard to construction and demolition, the State recommended an expansion of the State of California Green Building Code (known as CALGreen) standards that incentivize green building practices and increase diversion of recoverable construction and demolition materials. Current standards require 65% waste diversion on most construction and some renovation projects. The State also recommends promotion of the recovery of construction and demolition materials suitable for reuse, compost, or anaerobic digestion before residual wastes are considered for energy recovery.

#### *Local*

The Santa Barbara County Environmental Health Services Department is the Local Enforcement Agency (LEA) for CalRecycle. The Santa Barbara County Code of Ordinances (January 2022) Chapter 17 Section 23 says: “To assist the county in maintaining compliance with AB 939: the Integrated Waste Management Act which requires the diversion of at least fifty percent of all waste generated, the county specifically requires fifty percent of all construction and demolition waste to be recycled.” (Ordinance 4689, Section 1).

#### ***Environmental Determination:***

- 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?***

Impact: No Impact

The proposed Project does not add additional treatment capacity to the existing WRRF, nor does it involve the relocation of a WRRF or creation of a new WRRF. The proposed Project does not require additional or relocated storm water drainage infrastructure. Development of the proposed Project site is not anticipated to increase the volume or velocity of storm water runoff from the site. The proposed Project does not impact telecommunications facilities or natural gas facilities.

The proposed Project does include some electrical infrastructure on-site to allow the electricity produced on-site through the CHP system to be utilized on-site. However, the facility will remain tied into the local electrical utilities in order to maintain facility functions. The CHP is not expected to supply all the facilities electricity needs, so the electrical utility connection is required. As a result, the impacts to the electrical utility system in general are minimal and will not require significant relocation of or creation of new electric utilities, excluding changes on-site. As such, the potential impacts of the Project on wastewater and water treatment facilities would be less than significant.

- b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?***

Impact: No Impact

The proposed Project has no impact on water supplies. Water distribution infrastructure is already in place on and around the proposed Project site. The proposed changes to GSD's facility would not require additional potable water. Reclaimed water produced on-site is used for plant processes and for on-site irrigation. There are no additional permanent personnel associated with this Project. Furthermore, GSD will comply with local, regional, and State water conservation policies and must follow standard BMPs to reduce water consumption. Therefore, there are no impacts to local water resources.

***c) Result in a determination by the waste water 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?***

Impact: No Impact

In this case, the proposed Project is at the regional wastewater treatment plant. The Project is not expected to have any impact on the volume of water received by GSD, and implementation of the proposed Project would not affect the capacity of the GSD facility. Therefore, there are no impacts on the wastewater treatment provider in terms of water treatment demand.

***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?***

Impact: Less Than Significant with Mitigation Incorporated

The Project description estimates 210 truck trips (12 cubic yards each) for disposal of soil and waste during construction. This number of trucks represents a total of 2,520 cubic yards, or about 3,150 tons, of solid waste, which will be primarily soil and concrete or asphalt debris weighing approximately 2,500 pounds per cubic yard (CalRecycle 2016).

Local ordinances require that at least 50% of construction debris be diverted from landfills, i.e., recycled or reused, and State law requires that 65% of construction debris be diverted from landfills. The Santa Barbara County Environmental Thresholds and Guidelines Manual indicates that more than 350 tons of construction-related solid waste could be considered significant. As noted in Section 2.4.1, the new Digester 4 will be deeper than the existing digesters and will entail the excavation of a substantial amount of soil, along with some concrete and other debris. To the extent practicable, the excavated soils will be balanced on-site. The remaining materials would typically be used at other construction sites or otherwise recycled. In order to mitigate a potentially significant impact, a mitigation measure is proposed that the waste soil and construction debris will be recycled or repurposed to the extent practicable, such that the total solid waste sent to landfill will be less than 350 tons from construction of the proposed Project.

Solid waste sent to landfill during operation of the WRRF is not expected to change significantly. There will be some additional waste related to the CHP engine, including waste iodine impregnated activated carbon (approximately 1,300 liters per year) and engine oil (approximately 2,000 liters per year). This waste is expected to total about 3.5 tons per year, which is substantially less than the operations solid waste threshold from the Santa Barbara County Environmental Thresholds and Guidelines Manual of 196 tons per year.

*e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?*

Impact: Less Than Significant with Mitigation Incorporated

With the inclusion of MM-WAS-1, all federal, State, and local statutes will be met and more than 65% of construction debris will be diverted from landfill. This project does not directly affect compliance with SB 1383, as it is not expected to create significant new streams of organic wastes.

***Cumulative Impacts:***

Wastewater Treatment Plants/WRRFs have significant challenges to meet solid waste diversion requirements. The GSD WRRF produces biosolids, and the amount produced is dependent on the influent wastewater feedstock, which is not expected to change as a result of this Project. The excess soil and construction debris, as well as the minor additional amount of waste generated from Project operations, will add cumulatively to the solid waste generated by the GSD WRRF. GSD expects to meet the overall waste requirements by diverting biosolids from landfill disposal in the coming years. Currently, all biosolids are sent to Liberty Farms, where they are composted for beneficial reuse. The proposed MM-WAS-1 would ensure that the construction solid waste impacts are not cumulatively considerable. There are no changes to population or on-site personnel related to this Project, so there are no additional solid waste streams to consider. The ongoing cumulative impacts to solid waste are less than significant per the Santa Barbara County Environmental Thresholds Document, as the ongoing solid waste production is less than 40 tons per year.

***Mitigation Measure:***

Please refer to Section 3.5.6 to review the construction waste diversion Mitigation Measure MM-WAS-1. After implementation of Mitigation Measure MM-WAS-1, impacts related to solid waste disposal during construction would be less than significant. Mitigation measures related to utilities or solid waste disposal are not required during Project operations.

**XX. Wildfire**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XX. Wildfire.</b> If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Existing Conditions:**

The proposed Project site is within the existing GSD facility, which is concrete, asphalt, and grass.

***Environmental Determination:***

***a) Substantially impair an adopted emergency response plan or emergency evacuation plan?***

Impact: Less Than Significant Impact

The new digester and CHP engine will be located next to the existing digesters and do not require alterations to any roads or throughways. GSD has an HMBP maintained in the California Environmental Reporting System (CERS), and although the new equipment may require alterations to the HMBP, it will not impair the effectiveness of GSD's emergency response plan.

***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?***

Impact: No Impact

The proposed Project site is not in a designated moderate, high, or very high wildfire risk area. The site is relatively flat and accessible, such that the proposed Project would not contribute to the potential for uncontrolled spread of wildfire. The site is largely paved and is adjacent to the paved runways of the Santa Barbara Municipal Airport.

***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?***

Impact: No Impact

The proposed Project site is not in a designated moderate, high, or very high wildfire risk area according to the California Department of Forestry and Fire Protection Fire Resource Assessment Program for the County of Santa Barbara. The GSD WRRF has the required facilities and plans in place related to health and safety programs and precautions for emergencies and fire. No additional infrastructure is planned or needed to mitigate risk from wildfires. The proposed Project will not have an impact on the potential for risks from wildfires.

***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?***

Impact: No Impact

The proposed Project site is in a nearly flat coastal zone with no planned drainage changes and has minimal risk of flooding or slope instability (see Section 3.4.VII and Appendix A). The WRRF has large ponds and is not expected to expose workers or the public to a threat from flooding or landslides that might result in the event of a wildfire.

***Mitigation Measures:***

No mitigation is required.

**XXI. Mandatory Findings of Significance**

Issues	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
<b>XXI. Mandatory Findings of Significance.</b>				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

***Environmental Determination:***

***a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?***

**Impact: Less Than Significant Impact with Mitigation Incorporated**

Based on the sections presented in this MND, the potentially significant impacts are biological, cultural, geological/paleontological, tribal cultural resources, and utilities/solid waste. All other impacts are considered less than significant. However, with mitigation incorporated, the Project is not expected to have a significant effect on the environment, habitats, populations, animal ranges, or plant or animal communities, or eliminate examples of periods of history. The mitigation measures that ensure this are MM-BIO-1, MM-BIO-2, MM-CUL-1, MM-CUL-2, MM-CUL-3, MM-CUL-4, MM-CUL-5, MM-GEO-1, MM-TCR-1, MM-TCR-2, MM-TCR-3, and MM-WAS-1.

Additionally, there is a set of required air mitigation measures related to construction air emissions, MM-AIR-1, which makes construction emissions considered less than significant. All of these measures apply to the construction phase only, and no mitigation measures were found to be needed during operation of the proposed Project components for impacts to be less than significant.

***b) Does the project have impacts that are individually limited, but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)***

Impact: Less Than Significant Impact with Mitigation Incorporated

Cumulative impacts are discussed for those topics where there is a potential for the proposed Project to cause significant impacts. Several areas of potential cumulative impact requiring mitigation have been discussed. Since the area is already nonattainment for PM<sub>10</sub>, development of the surrounding area could have considerable cumulative impacts to air quality. However, mitigation measures are generally required of all projects to implement during construction to reduce the potential for cumulative impact. Potential impacts to biological, cultural, and paleontological resources are associated with temporary, localized construction activities, and the mitigation measures identified will serve to minimize the potential for cumulative impacts. Lastly, California has many programs in place to reduce the amount of solid waste being put into landfills, and GSD will continue to employ best practices and implement the measures identified. With all the mitigation measures listed in Section 3.5, the potential for cumulative impacts from construction and operation of the Project is considered less than significant.

***c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?***

Impact: Less Than Significant Impact

With less than significant air quality and health risk impacts, GHG emissions, hazardous material, noise, wildfire, and all other potential impacts, the risk of substantial adverse effects on human beings is considered less than significant.

### 3.5 Mitigation Measures

The required mitigation measures are outlined below. A Mitigation Monitoring and Reporting Program is included in Appendix G.

#### 3.5.1 Construction Air Emissions

The following measures are required by the SBCAPCD (2017) for projects involving earthmoving activities regardless of the project size or duration. The measures are based on policies adopted in the 1979 Air Quality Attainment Plan for Santa Barbara County. Proper implementation of these measures is assumed to fully mitigate fugitive dust emissions.

**MM-AIR-1** During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency should be required whenever the wind speed exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption.

Minimize the amount of disturbed area and reduce on-site vehicle speeds to 15 mph or less.

If import, export, and stockpiling of fill material is involved, soil stockpiled for more than 2 days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.

Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.

After clearing, grading, earthmoving, or excavation is completed, treat the disturbed area by watering or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.

The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust off-site. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to grading/building permit issuance and/or map clearance.

#### 3.5.2 Biological Resources

Impacts to Nesting Birds: Should construction or vegetation clearing be initiated during the bird nesting season (January 15<sup>th</sup> to September 15<sup>th</sup>), injury and mortality to native nesting birds protected under the Migratory Bird Treaty Act and the California Fish and Game Code may occur.

**MM-BIO-1 Pre-construction Nesting Bird Surveys.** If Project activities are proposed during the general avian breeding season of January 15<sup>th</sup> to September 15<sup>th</sup>, the Project biologist shall conduct a preconstruction survey for active nests within 500 feet of the construction area and submit a letter report to the County of Santa Barbara prior to the preconstruction meeting. If active nests are detected, clearing and construction within a minimum of 300 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. If an active raptor or rare,



threatened, endangered, or species of special concern bird nest is found, clearing and construction within a minimum of 500 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. The report submitted to the County shall include mitigation measures including, but not limited to, (1) worker environmental awareness training, (2) daily biological monitoring during construction activities, and (3) the locations of flags and/or stakes to provide the appropriate avoidance buffers. If no nesting birds are detected during the pre-construction survey, no mitigation is required.

The Project biologist shall continue to perform site surveys during all construction activities to detect any nesting birds that may nest on the Project site after the preconstruction survey. Preconstruction clearance surveys shall be completed as required to comply with the federal Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, California Fish and Game Code, and/or County regulations. If the biological monitor determines that Project activities are disturbing or disrupting nesting activities, the monitor will make recommendations to County staff to reduce the noise or disturbance in the vicinity. This may include recommendations such as (1) turning off vehicle engines and other equipment whenever possible to reduce noise, (2) working in other areas until the young have fledged, and (3) stopping work until young are independent of their nests (Development Standard ECO-EGV-2C in County of Santa Barbara 2017).

#### *Requirements and Timing*

Preconstruction nesting bird surveys shall be completed prior to any vegetation clearing or ground disturbance associated with construction or grading during the bird nesting season (January 15<sup>th</sup> to September 15<sup>th</sup>). The survey should be conducted within 1 week prior to construction or site preparation activities that would occur during the nesting/breeding season of native bird species potentially nesting on the site.

#### *Monitoring*

GSD shall ensure the preconstruction nesting bird surveys and any avoidance requirements are completed prior to commencement of any earthmoving activities. The results of the preconstruction nesting bird survey will be submitted to the County prior to the preconstruction meeting to document compliance with applicable State and federal laws pertaining to the protection of native birds.

Potential indirect impacts could occur as a result of construction site runoff. These impacts may include accidental pollutant/chemical spills or discharge of materials from the use of concrete, oil/gas, water runoff, or on-site fueling stations. To minimize potential impacts to adjacent sensitive habitat and potential jurisdictional features, the following measure is recommended.

**MM-BIO-2 Erosion and Sediment Control Plan (ESCP).** Due to the Project impact of less than 1 acre, the Applicant shall prepare an ESCP to minimize the potential for discharge of pollutants during construction activities. The ESCP shall be designed to minimize erosion during construction and shall be implemented for the duration of the grading period and until re-graded areas have been stabilized by structures, long-term erosion control measures, or permanent landscaping. The ESCP shall include both structural and non-structural BMPs, including straw wattles around storm drains, silt

fencing, and/or other physical controls to divert flows from exposed soil, spill prevention methods, and clean housekeeping methods for storing and refueling machinery. The ESCP shall use BMPs designed to stabilize the site, protect natural watercourses/creeks, prevent erosion, and convey storm water runoff to existing drainage systems, keeping contaminants and sediments on-site.

As part of the ESCP, the contractor shall include specifications, installation requirements, and locations of appropriate BMPs to control sediment, coarse particles, concrete, and other materials exposed during construction. During construction activities, washing of concrete or equipment shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Washing will not be allowed in locations where the tainted water could enter storm drains.

There is a storm water conveyance swale located in the grassy field, south of the staging area. A 50-foot buffer is required from this feature. The southern boundary of the staging area will need appropriate BMPs, such as a silt fence to protect storm water.

#### *Requirements and Timing*

The ESCP shall be submitted and approved prior to any ground disturbance. A County-approved ESCP is required in order to be issued a Grading Permit. ESCPs shall be developed by a professional knowledgeable in erosion and sediment control. It is recommended that a Certified Professional in Sediment and Erosion Control develop the ESCP. The responsible party shall designate an individual to be responsible for on-site installation, maintenance, and removal of ESCP measures. The ESCP requirements shall be implemented between November 1<sup>st</sup> and April 15<sup>th</sup> of each year, except pollution control measures, which shall be implemented year-round.

#### *Monitoring*

The contractor shall inspect BMPs regularly and prior to storm events. The contractor shall maintain BMPs in good condition at all times and monitor the site's storm water measures prior to the start of construction and throughout the duration of construction to ensure they continue to function properly.

#### **3.5.3 Cultural Resources**

Substantial adverse change in the significance of a historical resource/archaeological resource pursuant to 14 CCR Section 15064.5.

**MM-CUL-1 Data Recovery.** Despite efforts to avoid significant intact cultural deposits, the proposed Project would impact cultural deposits of moderate density, and therefore, the Project has a potential to adversely affect a unique archeological resource. As such, pursuant to CEQA, data recovery is required to be implemented according to following tasks:

1. A qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, shall be retained to develop a data recovery program and research design prior to the data recovery efforts and shall make provision for adequately recovering the scientifically consequential information from and about the resource. The program shall be prepared and adopted prior to any excavation being undertaken [CEQA Guidelines Section 15126.4(b)(3)(A)]. The data recovery

plan shall include specific levels of effort and methods to obtain a statistically representative sample of significant archaeological deposits, as well as field and laboratory requirements to ensure proper treatment of all materials, including documentation of results and curation of the archaeological collection. This plan shall be submitted to GSD for review prior to implementation.

Specifically, the data recovery plan shall, at the least, include the standards, guidelines, and performance criteria to ensure that the data recovery mitigation will be effective in “adequately recovering the scientifically consequential information from and about the historical resource” as stated in CEQA Guidelines Section 15126.4(b)(3)(C). The following are basic criteria, based on the California Office of Historic Preservation (OHP) Guidelines for Archaeological Research Designs (OHP 1991), from which a more detailed and comprehensive data recovery plan shall be formulated:

- Professional Qualifications – the data recovery plan shall be designed by a qualified archaeologist meeting the Secretary of Interior’s Professional Qualifications for archaeology and having at least 2 years documented supervisory experience in the study of prehistoric archaeological resources of the region.
- Research Design – the research design shall be developed to satisfy the requirement for public benefit that can be derived from the data recovery efforts. The design shall focus research on one or more important hypotheses that have been carefully constructed to address current data gaps, new models, theories, investigative and conservation techniques, and priority research areas identified by State or federal agencies (OHP 1991; National Park Service 2020). The design shall have the following goals pursuant to OHP guidelines: focus on important goals, be realistic and attainable, establish efficient methods to accomplish the goals, be understandable, provide a thorough and well-organized argument, and be concise and flexible.
- Fieldwork, Laboratory and Curation Methods – The data recovery field methods shall be designed to recover the entire portion of the cultural resource (sandstone-lined well) that will be impacted as a result of the ground disturbance and a statistically significant assemblage of any surrounding resource deposit, sufficient to answer the research questions determined in the data recovery research design that the site is potentially capable of addressing.
- Report Elements – the data recovery efforts shall be thoroughly documented in a comprehensive report including the following core elements: theoretical orientation; cultural context; definition of the formulated hypotheses presented in the original research design; all field, laboratory, and curation methods; results of research; implications of the results in light of current understanding; and its potential to contribute to future research and understanding.

**MM-CUL-2 Construction Monitoring Treatment Plan.** Impacts to cultural resources shall be minimized through implementation of pre- and post-construction tasks. Tasks pertaining to cultural resources include the development of a Construction Monitoring Treatment Plan. The purpose of the Plan is to outline a program of treatment and mitigation in the case of an inadvertent discovery of cultural resources during ground-disturbing phases and to provide for the proper identification, evaluation, treatment, and protection of any cultural resources throughout the duration of the Project. This Plan shall define the process to be followed for the identification and management of cultural resources in the Project area during construction. Existence of and importance of adherence to this Plan shall be stated on all Project site plans intended for use by those conducting the ground-disturbing activities.

**MM-CUL-3 Workers Environmental Awareness Program (WEAP) Training.** All construction personnel and monitors who are not trained archaeologists should be briefed regarding unanticipated discoveries prior to the start of ground-disturbing activities. A basic presentation shall be prepared and presented by a qualified archaeologist and Native American representative to inform all personnel working on the Project about the archaeological sensitivity of the area. The purpose of the WEAP training is to provide specific details on the kinds of archaeological materials that may be identified during construction of the Project and explain the importance of and legal basis for the protection of significant archaeological resources. Each worker shall also be instructed on the proper procedures to follow in the event that cultural resources or human remains are uncovered during ground-disturbing activities. These procedures include work curtailment or redirection and the immediate contact of the archaeological monitor (or if no monitor is present, senior archaeologist) and Native American monitor. Necessity of training attendance shall be stated on all Project site plans intended for use by those conducting the ground-disturbing activities.

**MM-CUL-4 Archaeological Monitoring.** A qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards shall monitor all initial (first movement of soils within each ground disturbance location at complete horizontal and vertical extents) ground disturbances within the proposed Project site. A qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards for a Principal Investigator shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue spot monitoring frequency) based on the observed potential for construction activities to encounter cultural deposits. The archaeological monitor shall be responsible for maintaining monitoring logs. Following the completion of construction, the qualified archaeologist shall provide an archaeological monitoring report to the District and the CCIC with the results of the cultural monitoring program.

**MM-CUL-5 Inadvertent Discovery of Archaeological Resources.** In the event that archaeological resources (sites, features, or artifacts) are exposed during ground-disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA [14 CCR Section 15064.5(f); California PRC Section 21082], the archaeologist may simply record the find and allow work to continue. If the discovery

proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a tribal representative may be necessary.

If a discovery consists of possible human remains, the Santa Barbara County Coroner, the qualified archaeologist, and GSD shall be contacted immediately. If the Coroner determines that the remains are Native American, the Coroner shall contact the California NAHC, who will provide the name and contact information for the Most Likely Descendent (MLD). Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a tribal representative shall be retained to monitor all further subsurface disturbance in the area of the find. In the event of the discovery of human remains, work in the area of discovery may only proceed after GSD grants authorization.

#### ***3.5.4 Geology and Soils***

**MM-GEO 1** Paleontological Resources Impact Mitigation Program and Paleontological Monitoring. Prior to commencement of any grading activity on-site, the applicant shall retain a qualified paleontologist per the SVP (2010) guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the proposed Project. The PRIMP shall be consistent with the SVP (2010) guidelines and outline requirements for preconstruction meeting attendance and worker environmental awareness training, where paleontological monitoring is required within the Project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the preconstruction meeting and a qualified paleontological monitor shall be on-site during initial rough grading and other significant ground-disturbing activities (including augering) in previously undisturbed, early Pleistocene to late Pliocene unnamed marine sedimentary units and Monterey Formation deposits. The qualified paleontological monitor shall also be on-site during initial grading depth of 5 feet below the ground surface in areas underlain by Holocene estuarine deposits to determine if they are old enough to preserve scientifically significant paleontological resources. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will allow grading to recommence in the area of the find.

#### ***3.5.5 Tribal Cultural Resources***

Impacts to TCRs listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k), and resources determined by the lead agency in its discretion and supported by substantial evidence pursuant to subdivision (c) of Section 5024.1, should be avoided if feasible and otherwise mitigated pursuant to subdivision (b) of Section 21084.3.

**MM-TCR-1 Workers Environmental Awareness Program.** All interested tribes that requested and participated in formal AB 52 consultation shall be notified by the GSD of

the time and location of the WEAP training no later than 72 hours prior to its scheduled occurrence. GSD shall provide all interested consulting tribes access and opportunity to participate in the WEAP training.

**MM-TCR-2 Retention of a Native American Monitor.** Prior to any ground disturbance activities, GSD shall contact any interested tribes with notification of the commencement of ground-disturbing activities, including archaeological excavations. The applicant shall make arrangements with the interested tribe(s) to enter into a Native American Monitoring Agreement with the intent of securing a total of one Native American monitor to be present during initial ground disturbance occurring from 1 foot above native soils and below. Initial ground disturbance is defined as initial construction-related earthmoving of sediments from their place of deposition; this includes archaeological investigations. As it pertains to cultural resource (archaeological or Native American) monitoring, this definition excludes movement of sediments after they have been initially disturbed or displaced by current Project-related construction. The need for cultural resource monitoring (archaeological and Native American) will be determined by a qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards for a Principal Investigator in consultation with interested tribes who shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue monitoring frequency) based on the observed potential for construction activities to encounter cultural deposits or material. More than one monitor may be required if multiple areas within the Project site are simultaneously exposed to initial ground disturbance as previously defined in these mitigation measures, causing monitoring to be hindered by the distance of the simultaneous activities. The need for an additional monitor shall be determined by the qualified archaeological principal investigator meeting the Secretary of the Interior's Professional Qualification Standards in consultation with interested tribes. The Native American Monitoring Agreement(s) shall include, but not be limited to, outlining provisions and requirements for establishing on-site Native American monitoring for professional tribal monitors during initial ground disturbance as defined above. If multiple interested tribes request to be present during initial ground-disturbing activities, each interested tribe will be provided access to the Project site when initial ground-disturbing activities are occurring and with a 48-hour notice. However, one interested tribe at a time will be monetarily compensated for monitoring. If more than one interested tribe would like to be retained for monetary compensation, a schedule will be created to equally share the Native American monitoring duties.

**MM-TCR-3 Inadvertent Discovery of Tribal Cultural Resources.** In the event that TCRs (sites, features, or artifacts) are exposed during ground-disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist meeting the Secretary of the Interior's Professional Qualification Standards can evaluate the significance of the find in consultation with interested tribe(s) as appropriate and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA [14 CCR Section 15064.5(f); California PRC Section 21082], the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or

monitoring by a tribal representative may be necessary. If a discovery consists of possible human remains, the Santa Barbara County Coroner shall be contacted immediately, as well as the qualified archaeological Principal Investigator and GSD. If the Coroner determines that the remains are Native American, the Coroner shall contact the California NAHC, who will provide the name and contact information for the MLD. Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a tribal representative shall be retained to monitor all further subsurface disturbance in the area of the find. In the event of the discovery of human remains, work in the area of discovery may only proceed after GSD grants authorization.

### ***3.5.6 Utilities and Service Systems***

**MM-WAS-1 Solid Waste Diversion from Landfill.** GSD will ensure that the construction contractor does not dispose of greater than 350 tons of solid waste in any California landfill. The contractor may exceed 350 tons only if they receive written permission from a landfill (for example, if the landfill wants soils for barrier layers), or if they complete a solid waste mitigation plan that is approved by the Santa Barbara County Public Works Department (or another regional agency if authorized to do so). Since this is a requirement on the construction contractor, GSD will enforce this through a contract mechanism or other legally binding requirement.

## 4.0 REFERENCES AND PREPARERS

### 4.1 References

- 2G. 2022. GSD Agenitor 412 BG Engine Specifications / Proposal.
- Association of Environmental Professionals (AEP). 2019. California Environmental Quality Act (CEQA) Statute and Guidelines.
- CalGEM (California Geologic Energy Management Division). 2021. Well Finder, CalGEM GIS. Accessed April 22, 2021.  
<https://maps.conservation.ca.gov/doggr/wellfinder/#openModal/-119.82885/34.42090/16>.
- California Air Pollution Control Officers Association in Collaboration with the California Air Districts. 2021. California Emissions Estimator Model (CalEEMod) Version 2020.4.0 and associated user's guide and appendices. Online at:  
<http://www.aqmd.gov/caleemod/home>
- California DOC (Department of Conservation). 2009. Santa Barbara County Tsunami Inundation Maps. Prepared by the California Office of Emergency Services, California Geological Survey, and University of Southern California. Goleta Quadrangle map prepared January 31, 2009. Accessed online April 23, 2021.  
[https://www.conservation.ca.gov/cgs/Documents/Publications/Tsunami-Maps/Tsunami\\_Inundation\\_Goleta\\_Quad\\_SantaBarbara.pdf](https://www.conservation.ca.gov/cgs/Documents/Publications/Tsunami-Maps/Tsunami_Inundation_Goleta_Quad_SantaBarbara.pdf).
- California Department of Conservation. 2021. California Important Farmland Finder. Accessed 10/7/2021. Online at: <https://maps.conservation.ca.gov/DLRP/CIFF/>
- California Department of Toxics Substances Control. 2021. EnviroStor. Accessed 10/20/2021. Online at: <https://www.envirostor.dtsc.ca.gov/public/>
- California Department of Transportation (CalTrans). 2021. California State Scenic Highway System Map. Accessed 11/10/2021. Online at:  
<https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=465dfd3d807c46cc8e8057116f1aaca>
- California Department of Transportation (CalTrans). 2021. "California State Scenic Highways Accessed" webpage. Accessed 11/10/2021. Online at:  
<https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways>
- California DWR (Department of Water Resources). 2004. Goleta Groundwater Basin. California's Groundwater Bulletin 118. Accessed online April 23, 2021.  
[https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/3\\_016\\_Goleta.pdf](https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2003-Basin-Descriptions/3_016_Goleta.pdf).
- California DWR. 2021. SGMA Basin Prioritization Dashboard. Accessed online April 27, 2021.  
<https://gis.water.ca.gov/app/bp-dashboard/final/>.
- California Energy Commission. 2021. "Waste Heat and Carbon Emissions Reduction Act" webpage. Accessed 12/16/2022. Online at: <https://www.energy.ca.gov/programs-and-topics/programs/waste-heat-and-carbon-emissions-reduction->



[act#:~:text=California's%20Waste%20Heat%20and%20Carbon,of%20electricity%20from%20eligible%20facilities.](#)

California State Water Resources Control Board. 2021. GeoTracker. Accessed 11/12/2021.  
Online at: <https://geotracker.waterboards.ca.gov/>

California Supreme Court. 2015. California Building Industry Association v. Bay Area Air Quality Management District No. S213478, Decided December 17, 2015. Accessed March 7, 2022. <https://caselaw.findlaw.com/ca-supreme-court/1721100.html>.

CalRecycle: 2019. California Green Building Standards Code. Online at:  
<https://codes.iccsafe.org/content/CAGBC2019JUL21S/cover>

CalRecycle. 2021. “Solid Waste Cleanup Program Weights and Volumes for Project Estimates” webpage. Online at: <https://www.calrecycle.ca.gov/swfacilities/cdi/Tools/Calculations>

CDFW (California Department of Fish and Wildlife). 2021a. List of Vegetation Alliances and Associations (Natural and Sensitive Communities Lists). Accessed February 2021.  
<https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities>.

CDFW. 2021b. Special Plant and Animal Lists. Accessed February 2021.  
<https://www.dfg.ca.gov/wildlife/nongame/list.html>

CDFW. 2021c. Rarefind 5: Commercial version. Online database. California Natural Diversity Database. CDFW, Biogeographic Data Branch. Accessed February 2021.  
<https://wildlife.ca.gov/Data/CNDDDB>.

CDMG (California Division of Mines and Geology). 1989. Mineral Land Classification: Portland Cement Concrete Aggregate and Active Mines of all Other Mineral Commodities in the San Luis Obispo-Santa Barbara Production-Consumption Region. Special Report 162.

CGS (California Geological Survey). 1991. SR 162, Mineral Land Classification: Portland Cement Concrete Aggregate and Active Mines of All Other Mineral Commodities in the San Luis Obispo-Santa Barbara Production-Consumption Region. By Miller, R.V., Cole, J. W., and Clinkenbeard, J.P.

CGS (California Geological Survey). 2002. California Geomorphic Provinces: Note 36. 4 pp.

City of Goleta. 2009. Geologic Hazards Map. General Plan/Coastal Land Use Plan. Online at <https://www.cityofgoleta.org/home/showdocument?id=4109>.

City of Goleta. 2016. General Plan/Coastal Land Use Plan, Fire, Flood, and Tsunami Hazards Map. Accessed April 29, 2021.  
<https://www.cityofgoleta.org/home/showdocument?id=11832>.

CNPS (California Native Plant Society). 2021. California Native Plant Society, Rare Plant Program. 2019. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Accessed February 2021. <http://www.rareplants.cnps.org>.

County of Santa Barbara Planning and Development Department. 2015. Eastern Goleta Valley Community Plan Accessed 10/13/2021. Online at:  
[https://www.countyofsb.org/uploadedFiles/plndev/Content/Code\\_and\\_Policy/EGVCP%20Adopted%20w%20CCC%20Modifications%20FINAL%20Online%20Version.pdf](https://www.countyofsb.org/uploadedFiles/plndev/Content/Code_and_Policy/EGVCP%20Adopted%20w%20CCC%20Modifications%20FINAL%20Online%20Version.pdf)

- County of Santa Barbara. 2022. Code of Ordinances. Online at [https://library.municode.com/ca/santa\\_barbara\\_county/codes/code\\_of\\_ordinances?nodeId=16322](https://library.municode.com/ca/santa_barbara_county/codes/code_of_ordinances?nodeId=16322)
- County of Santa Barbara. 2022. Public Health Department, Environmental Health Services “Solid Waste” Webpage, online at: <https://www.countyofsb.org/phd/ehs/solid-waste.sbc>
- County of Santa Barbara Planning and Development. Revised 2021. Environmental Thresholds and Guidelines Manual. Online at <http://www.sblafco.org/asset.c/1375>
- County of Santa Barbara. 2021. Santa Barbara County Article II Coastal Zoning Ordinance. Accessed 10/20/2021. Online at: <https://cosantabarbara.app.box.com/s/ca93u38tv092neffw488txbjqh3ucrnv>
- County of Santa Barbara. 2015. Santa Barbara County Comprehensive Plan, Seismic Safety & Safety Element. Online at <http://countyofsb.org/plndev/policy/comprehensiveplan/safetyelement.sbc>.
- County of Santa Barbara. 2017. Eastern Goleta Valley Community Plan. Adopted by the Board of Supervisors on October 20, 2015. Coastal Portion Certified by the California Coastal Commission December 14, 2017. Long Range Planning Division, Planning and Development Department, County of Santa Barbara.
- County of Santa Barbara. 2019. Coastal Land Use Plan. Santa Barbara County Comprehensive Plan. Planning and Development, County of Santa Barbara. Adopted 1982. Republished June 2019.
- Dartnell, P., J.E. Conrad, R.G. Stanley, and G.R. Cochrane. 2011. Onshore and Offshore Geological Map Coal Oil Point Area, Southern California. U.S. Geological Survey, Scientific Investigations Map SIM- 3124, 1;24,000.
- Federal Transit Administration. 2018. Transit Noise and Vibration Impact Assessment Manual. Online at: [https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123\\_0.pdf](https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf)
- FEMA (Federal Emergency Management Agency). 2018. National Flood Insurance Program, Flood Insurance Rate Map, Santa Barbara County, California and Incorporated Areas. Panel 1362 of 1835, Map Number 06083C1362H, dated September 28, 2018. Accessed online April 23, 2021. <https://msc.fema.gov/portal/search#searchresultsanchor>.
- FEMA. 2020. Critical Facility. Accessed online April 29, 2021. <https://www.fema.gov/glossary/critical-facility>.
- Goleta Sanitary District Mitigated Negative Declaration for the Wastewater Treatment Plant Upgrade Project (SCH No. 2008061141), September 2009, Tetra Tech
- Goleta Water District. 2017. 2015 Urban Water Management Plan. Prepared by RMC and Woodard & Curran, June 2017. Accessed April 23, 2017. [http://www.goletawater.com/assets/uploads/GWD\\_2015UWMP\\_Final\\_June\\_2017.pdf](http://www.goletawater.com/assets/uploads/GWD_2015UWMP_Final_June_2017.pdf).
- Google. 2022. Google Maps (multiple uses surrounding GSD facility). Online at <https://www.google.com/maps/place/Goleta+Sanitary+District/@34.422204,->

[119.833654,15z/data=!4m5!3m4!1s0x0:0x61e0a67bb8c65a84!8m2!3d34.422204!4d-119.833654](https://www.fws.gov/ipac/)

IPaC (Information for Planning and Consulting). 2021. Information for Planning and Consulting. Environmental Conservation Online System. U.S. Fish and Wildlife Service. Accessed February 2021. <https://ecos.fws.gov/ipac/>.

Jepson Flora Project. 2021. Jepson eFlora. Berkeley, California: University of California. Accessed February 2021. <http://ucjeps.berkeley.edu/interchange/index.html>.

Morton, D.M., and F.K. Miller. 2006. Geologic Map of the San Bernardino and Santa Ana 30-minute x 60-minute quadrangles, California, Geology and Description of Map Units, Version 1.0: U.S. Geological Survey, Open-File Report OF-2006-1217. 194 pp.

National Institute for Occupational Safety and Health (NIOSH). 2021. “Noise & Hearing Loss Prevention” webpage. Online at <https://www.cdc.gov/niosh/topics/noise/default.html>

National Institute for Occupational Safety and Health (NIOSH). 2021. “Reducing Noise Exposure: Guidance & Regulations” webpage. Online at: <https://www.cdc.gov/niosh/topics/noise/reducenoiseexposure/regsguidance.html>

Ninyo & Moore. 2021. Geotechnical Evaluation, Digester 4 Biosolids and Energy Design – Phase 1, Goleta Sanitary District, Goleta, California. Prepared for Hazen and Sawyer, January 29, 2021.

P-42-000048. 2007. Department of Parks and Recreation Site Record for CA-SBA-48. On File at CHRIS Central Coast Information Center. Located at Santa Barbara Museum of Natural History. Accessed February 2020.

Placer County. 2018. Conservation Program Draft EIS/EIR Environmental Consequences Noise and Vibration. Accessed 1/10/2022. Online at: <https://www.placer.ca.gov/DocumentCenter/View/37280/Chapter-48-Noise-and-Vibration-PDF> and <https://www.placerair.org/DocumentCenter/View/37309/Chapter-38-Noise-and-Vibration-PDF>

RWQCB (Regional Water Quality Control Board). 2019. Water Quality Control Plan for the Central Coastal Basin. Central Coast Region, State Water Resources Control Board, California Environmental Protection Agency. Accessed April 2021. [https://www.waterboards.ca.gov/centralcoast/publications\\_forms/publications/basin\\_plan/docs/2019\\_basin\\_plan\\_r3\\_complete\\_webaccess.pdf](https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/docs/2019_basin_plan_r3_complete_webaccess.pdf).

Santa Barbara County. 2017. “Agricultural Preserve (Williamson Act) of Santa Barbara County, 2015” webpage. Accessed 10/12/2021. Online at: <https://sbcblueprint.databasin.org/datasets/293bb2006edc4c8986d6b564d4502527/>

Santa Barbara County Air Pollution Control District and Santa Barbara County Association of Governments. 2007. 2007 Clean Air Plan Final. Online at: <https://www.ourair.org/wp-content/uploads/07Cap.pdf>

Santa Barbara County Air Pollution Control District and Santa Barbara County Association of Governments. 2015. 2013 Clean Air Plan Final. Online at: <https://www.ourair.org/wp-content/uploads/Final2013CleanAirPlan.pdf>

- Santa Barbara County Air Pollution Control District. 2015. Guidelines for the Implementation of the California Environmental Quality Act of 1970, as amended (Revised April 30, 2015). Online at: <https://www.ourair.org/wp-content/uploads/APCDCEQAGuidelinesApr2015.pdf>
- Santa Barbara County Air Pollution Control District. 2017. Scope and Content of Air Quality Sections in Environmental Documents (June 2017 Limited Update). Online at: <https://www.ourair.org/wp-content/uploads/ScopeContentJune2017-LimitedUpdate.pdf>
- Santa Barbara County Air Pollution Control District. 2021. Meeting Air Quality Standards webpage. Accessed 1/12/2021. Online at: <https://www.ourair.org/air-quality-standards/#:~:text=Santa%20Barbara%20County%20is%20attainment,standard%20and%20the%20PM10%20standard>
- Santa Barbara County Association of Governments. 2017. Fast Forward 2040 Regional Transportation Plan and Sustainable Communities Strategy. Accessed 1/14/2022. Online at: <https://www.ourair.org/wp-content/uploads/2019-12-19-Final-Plan.pdf>
- Santa Barbara County Fire Department. 2022. “CA Assembly Bill 38: Fire Hazard Severity Zones” webpage. Accessed 1/17/2022. Online at: <https://www.sbcfire.com/links/2395-maps/resources/9990-ca-assembly-bill-38-fire-hazard-severity-zones-map>
- Santa Barbara County Sustainability Division. 2019. Strategic Energy Plan for the County of Santa Barbara. Online at: <https://www.countyofsb.org/csd/asset.c/327>
- Santa Barbara County Sustainability Division. 2019. Strategic Energy Plan for the County of Santa Barbara. Online at: <https://www.countyofsb.org/csd/asset.c/327>
- Santa Barbara Airport Master Plan July 2017  
<https://www.santabarbaraca.gov/services/planning/erd/airport.asp> (10/20/2021)
- Sawyer, J., T. Keeler-Wolf, J. Evens. 2009. Manual of California Vegetation, 2nd ed. California Native Plant Society, Sacramento.
- SoCalGas. 2021. La Goleta Natural Gas Storage Facility. Accessed April 22, 2021.  
<https://www.socalgas.com/stay-safe/pipeline-and-storage-safety/storage-facility-safety/goleta>.
- Society of Vertebrate Paleontology (SVP). 2010. Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources. 11 p. Available;  
[https://vertpaleo.org/wp-content/uploads/2021/01/SVP\\_Impact\\_Mitigation\\_Guidelines.pdf](https://vertpaleo.org/wp-content/uploads/2021/01/SVP_Impact_Mitigation_Guidelines.pdf).
- Tetra Tech, Inc. 2009. Goleta Sanitary District Mitigated Negative Declaration for the Wastewater Treatment Plant Upgrade Project.
- The Climate Registry (TCR). 2020. 2020 default emission factors. Online at:  
<https://www.theclimateregistry.org/wp-content/uploads/2020/04/The-Climate-Registry-2020-Default-Emission-Factor-Document.pdf>
- United States Department of Agriculture. 2016. California’s Forest Resources: Forest Inventory and Analysis, 2001–2010 Accessed 10/13/2021. Online at:  
[https://www.fs.fed.us/pnw/pubs/pnw\\_gtr913.pdf](https://www.fs.fed.us/pnw/pubs/pnw_gtr913.pdf)

United States Energy Information Administration. 2021. “California State Energy Profile” webpage. Accessed 1/12/2022. Online at: <https://www.eia.gov/state/print.php?sid=CA>

USDA (U.S. Department of Agriculture). 2021. “California.” State PLANTS Checklist. Accessed February 2021. <https://plants.sc.egov.usda.gov/home>.

USDA NRCS (USDA Natural Resources Conservation Service). 2021. Web Soil Survey. Accessed February 2021. <http://websoilsurvey.nrcs.usda.gov>.

USGS (U.S. Geological Survey). 2021. Areas of Land Subsidence in California. Online at [https://ca.water.usgs.gov/land\\_subsidence/california-subsidence-areas.html](https://ca.water.usgs.gov/land_subsidence/california-subsidence-areas.html).

Wilken, D. 2018. DRAFT Rare Plants of Santa Barbara County. Santa Barbara Botanical Garden (SBBG). Version 2.0. March.

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**APPENDIX A – GEOTECHNICAL EVALUATION REPORT (NINYO &  
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# Geotechnical Evaluation Digester 4 Biosolids and Energy Design - Phase 1 Goleta Sanitary District Goleta, California

Hazen and Sawyer

11260 El Camino Real, Suite 102 | San Diego, California 92130

January 29, 2021 | Project No. 2115730001



Geotechnical | Environmental | Construction Inspection & Testing | Forensic Engineering & Expert Witness

Geophysics | Engineering Geology | Laboratory Testing | Industrial Hygiene | Occupational Safety | Air Quality | GIS

**Ninyo & Moore**  
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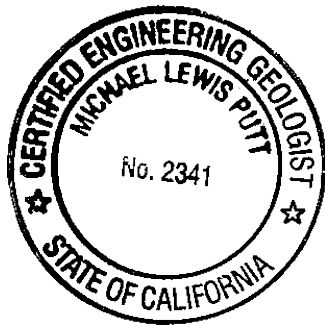
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A	Boring Logs
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## 1 INTRODUCTION

In accordance with your request, we have performed a geotechnical evaluation for Digester 4 that will be constructed as part of Phase 1 of the Goleta Sanitary District Biosolids and Energy Strategic Plan at the Water Resource Recovery Facility (WRRF) project in Goleta, California (Figure 1). The purpose of our geotechnical services was to evaluate the soil and geologic conditions at the project site and to provide conclusions and recommendations regarding the geotechnical aspects of the planned new construction.

## 2 SCOPE OF SERVICES

Our scope of services included the following:

- Project coordination and review of readily available geologic maps, published literature, and aerial photographs.
- Site reconnaissance to evaluate the surficial geologic conditions at the site and to locate the proposed borings for coordination with Underground Services Alert for underground utility location.
- Subsurface exploration consisting of the excavation, sampling, and logging of two small-diameter borings to depths of up to approximately 67 feet. The borings were logged by a representative of our firm and relatively undisturbed and bulk samples were obtained at selected intervals from the borings for testing.
- Laboratory testing of representative soil samples. Laboratory tests included evaluation of in-situ moisture and density, percentage of particles finer than No. 200 sieve, direct shear strength, and soil corrosivity.
- Data compilation and engineering analysis of the information obtained from our background review, subsurface evaluation, and laboratory testing.
- Preparation of this geotechnical report presenting our findings, conclusions, and geotechnical recommendations for the project.

## 3 SITE DESCRIPTION AND PROPOSED CONSTRUCTION

The subject site is located on the northern portion of Mescalitan Island and to the east of the Goleta Slough within the Goleta Basin in Santa Barbara County. The site is bounded to the north and west by the Santa Barbara Municipal Airport, which is located within the Goleta Slough. San Pedro Creek is located to the east of the WRRF. New Digester 4 will be located north of existing Digester 3 and west of existing Digester 1, which will be converted for biogas storage. The Digester 4 area is relatively flat with elevations at the site of approximately 30 feet above mean sea level (MSL) (United States Geological Survey [USGS], 2018) and is currently covered with grass. Numerous above ground and buried pipelines, and other pad mounted equipment associated with the existing digesters and biofilters are present within the area.

We understand that the project includes the construction of a new anaerobic digester and combined heat and power (CHP) system and converting the existing Digester 1 for biogas storage (Hazen and Sawyer, 2020). The proposed new Digester 4 will have an anticipated 0.55 MG capacity, with an approximate inside diameter of 55 feet. The bottom of the digester is conical-shaped with an approximate cone depth of 6 feet. The proposed new CHP system container weighs approximately 15,375 pounds and will be mounted to a concrete slab. The CHP system will be located adjacent to the existing power and maintenance building. Based on our understanding of the project, we anticipate that excavations on the order of 8 feet will be needed to construct the new digester. The approximate locations of the planned improvements are shown on Figure 2.

## **4 SUBSURFACE EVALUATION AND LABORATORY TESTING**

Our subsurface exploration at the site was performed on December 23, 2020, and consisted of the drilling, logging, and sampling of two small-diameter borings to depths of up to approximately 67 feet below the surface. The borings were drilled using a truck mounted drill rig utilizing 8-inch-diameter hollow stem augers. The borings were excavated to evaluate the subsurface conditions and to collect samples for laboratory testing, and were logged by a representative from our firm. Bulk and relatively undisturbed soil and bedrock samples were obtained at selected depths for laboratory testing. The approximate locations of the borings are presented on Figure 2. The logs of the exploratory borings are presented in Appendix A.

Laboratory testing of representative soil samples included tests to evaluate in-situ moisture and density, percentage of particles finer than No. 200 sieve, consolidation, direct shear strength, and soil corrosivity. The results of the in-situ moisture content and dry density tests are presented on the boring logs in Appendix A. The remaining laboratory testing results are presented in Appendix B.

## **5 GEOLOGIC AND SUBSURFACE CONDITIONS**

### **5.1 Regional Geologic Setting**

The project site is situated within the northwestern portion of the Transverse Ranges geomorphic province of southern California (Norris and Webb, 1990). The Transverse Ranges geomorphic province is characterized by generally east to west-trending mountain ranges and fault systems, and is generally underlain by thick sequences of marine sedimentary rock.

The project site is located on the Santa Barbara coastal alluvial plain south of the south flank of the Santa Ynez Mountains. The site vicinity is underlain by alluvium associated with deposition of sediments from Santa Ynez Mountains. Regional geologic mapping indicates that the site is

underlain by older Pleistocene siltstone terrace deposits and Miocene-age siliceous deposits of the Monterey formation (USGS, 2006). A regional geologic map is shown in Figure 3.

## 5.2 Site Geology

Based on our review of regional geologic publications, and our subsurface exploration, the project area is underlain by fill, terrace deposits, and at depth by the Monterey Formation. Fill materials were encountered in both of our exploratory borings to depths of up to approximately 8 feet below the ground surface (bgs). The fill encountered consisted predominantly of silty sand that was generally observed to be moist and very loose to medium dense. Terrace deposits were encountered beneath the fill in our exploratory borings to a depth of approximately 63 feet bgs. The terrace deposits generally consisted of unconsolidated sandy soils, silty claystone and silty sandstone materials. Monterey Formation was encountered beneath the terrace deposits in boring B-1 to the total depth explored of approximately 67 feet and consisted of clayey siltstone. Auger refusal was encountered in boring B-1 in the Monterey formation on siliceous bedrock.

## 5.3 Groundwater

Groundwater was encountered in boring B-1 at a depth of approximately 57 feet during drilling. Groundwater was measured at a property located approximately 1,400 feet northeast of the site, on the east side of San Pedro Creek, at depths as shallow as approximately 3 feet deep, which corresponds to an approximate elevation of 6 feet above MSL. Fluctuations in the level of groundwater may occur due to variations in ground surface topography, subsurface stratification, rainfall, irrigation practices, groundwater pumping, tidal fluctuations and other factors that may not have been evident at the time of our field evaluation.

## 6 SEISMICITY

The subject site is not located within a State of California Earthquake Fault Zone (formerly known as Alquist-Priolo Special Studies Zone) (Hart and Bryant, 1997). Although not zoned by the State of California, the site is located in close proximity to the More Ranch Fault Zone (part of the Mission Ridge Fault System), which is considered active by the County of Santa Barbara. The location of the More Ranch Fault is not consistent in the various geologic publications that we reviewed. Evaluation of the surface rupture hazard at the WRRF was performed by Earth Systems Pacific (2009). New Digester 4 will be located near Area 2 of the study performed by Earth Systems Pacific, and they concluded that breaks or offset geologic units suggestive of tectonic faulting were not observed in Area 2. Additional evaluation of surface fault rupture was beyond the scope of our services for this project.

The site is located in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project areas is considered significant during the design life of the proposed improvements. The approximate locations of major faults in the region and their geographic relationship to the site are shown on Figure 4.

Based on our document review, the potentially active Mission Ridge Fault Zone is located approximately 0.5 mile from the site. Table 1 lists selected principal known active faults that may affect the subject site and the maximum moment magnitude ( $M_{max}$ ) as published by the United States Geological Survey (USGS, 2008). The approximate fault-to-site distances were calculated using the USGS fault parameters web-based design tool (USGS, 2008).

In addition to mapped faults shown on Figure 4, the Channel Islands blind thrust fault is located approximately 31 miles south of the site. Blind thrust faults are low-angle faults at depths that do not break the surface and are, therefore, not shown on Figure 4. Although blind thrust faults do not have a surface trace, they can be capable of generating damaging earthquakes and are included in Table 1.

<b>Fault</b>	<b>Approximate Fault-to-Site Distance miles (kilometers)</b>	<b>Maximum Moment Magnitude (<math>M_{max}</math>)</b>
Mission Ridge	0.5 (0.8)	6.9
Red Mountain	3.1 (5.0)	7.4
North Channel	5.5 (8.9)	6.8
Pitas Point	6.1 (9.8)	7.3
Santa Ynez	8.5 (13.7)	7.3
Oak Ridge	14.7 (23.7)	7.4
Ventura	16.2 (26.0)	7.0
Los Alamos-West Baseline	19.6 (31.5)	6.9
Santa Cruz Island	25.8 (41.6)	7.2
Santa Rosa Island	28.7 (46.2)	6.9
Lions Head	29.8 (47.9)	6.8
Channel Islands Thrust	31.0 (49.9)	7.3
San Luis Range	37.4 (60.2)	7.2
San Cayetano	38.5 (62.0)	6.7
Casmalia	41.2 (66.2)	6.8
San Andreas	43.2 (69.6)	7.7
Simi-Santa Rosa	44.2 (71.2)	6.9

The principal seismic hazards at the subject site are surface fault rupture and strong ground motion. Liquefaction is not a consideration for the project due to the shallow depth of bedrock materials at the site. A brief description of these hazards and the potential for their occurrences on site are discussed below.

## 6.1 Surface Ground Rupture

Based on our review of the referenced literature and our site reconnaissance, no faults that are considered active by the State of California are known to cross the project site. However, as described above, the site is located in the More Ranch Fault Zone that is considered active by the County of Santa Barbara. A previous fault rupture study concluded that breaks or offset geologic units suggestive of tectonic faulting were not observed in the vicinity of the proposed Digester 4. Based on the findings from the prior surface fault rupture study, the probability of damage from surface ground rupture is considered to be low. However, lurching or cracking of the ground surface as a result of nearby seismic events is possible.

## 6.2 Site-Specific Ground Motion

Considering the proximity of the site to active faults capable of producing a maximum moment magnitude of 6.0 or more, the project area has a high potential for experiencing strong ground motion. The 2019 California Building Code (CBC) specifies that the risk-targeted maximum considered earthquake ( $MCE_R$ ) ground motion response accelerations be used to evaluate seismic loads for design of buildings and other structures. Per the 2019 CBC, a site-specific ground motion hazard analysis shall be performed for structures on Site Class D with a mapped  $MCE_R$ , 5 percent damped, spectral response acceleration parameter at a period of 1 second ( $S_1$ ) greater than or equal to 0.2g in accordance with Sections 21.2 and 21.3 of the American Society of Civil Engineers (ASCE) Publication 7-16 (2016) for the Minimum Design Loads and Associated Criteria for Building and Other Structures. We calculated that the  $S_1$  for the site is equal to 0.83g using the 2020 Applied Technology Council (ATC) seismic design tool (web-based); therefore, a site-specific ground motion hazard analysis was performed for the project area.

The site-specific ground motion hazard analysis consisted of the review of available seismologic information for nearby faults and performance of probabilistic seismic hazard analysis (PSHA) and deterministic seismic hazard analysis (DSHA) to develop acceleration response spectrum (ARS) curves corresponding to the  $MCE_R$  for 5 percent damping. Prior to the site-specific ground motion hazard analysis, we obtained the mapped seismic ground motion values and developed the general  $MCE_R$  response spectrum for 5 percent damping in accordance with Section 11.4 of ASCE 7-16 (ATC, 2020). The average shear wave velocity ( $V_s$ ) for the upper 30 meters of soil ( $V_{s30}$ ) is assumed to be 300 meters per second (m/s) (California Geological Survey/Willis Site Classification Map) and the depths to  $V_s = 1,000$  m/s and  $V_s = 2,500$  m/s are assumed to be 760 meters and 3,85 kilometers, respectively (Southern California Earthquake Center Community Velocity Model Version 4 Basin Depth). These values were evaluated using the Open Seismic Hazard Analysis software developed by USGS (USGS, 2020a).

The 2014 new generation attenuation (NGA) West-2 relationships were used to evaluate the site-specific ground motions. The NGA relationships that we used for developing the probabilistic and deterministic response spectra are by Chiou and Youngs (2014), Campbell and Bozorgnia (2014), Boore, Stewart, Seyhan, and Atkinson (2014), and Abrahamson, Silva, and Kamai (2014). The Open Seismic Hazard Analysis software developed by USGS (USGS, 2020a) was used for performing the PSHA. The Calculation of Weighted Average 2014 NGA Models spreadsheet by the Pacific Earthquake Engineering Research Center was used for performing the DSHA (Seyhan, 2014).

PSHA was performed for earthquake hazards having a 2 percent chance of being exceeded in 50 years multiplied by the risk coefficients per ASCE 7-16. The maximum rotated components of ground motions were considered in PSHA with 5 percent damping. For the DSHA, we analyzed accelerations from characteristic earthquakes on active faults within the region using the California Department of Transportation (Caltrans) ARS (Caltrans, 2019) seismic design tool (web-based) and the hazard curves and deaggregation plots at the site using the USGS Unified Hazard Tool application (USGS, 2020b). A magnitude 7.4 event on the Red Mountain fault with a rupture distance of 4.1 kilometers from the site was evaluated to be the controlling earthquake. Hence, the deterministic seismic hazard analysis was performed for the site using this event and corrections were made to the spectral accelerations for the 84th percentile of the maximum rotated component of ground motion with 5 percent damping.

The site-specific  $MCE_R$  response spectrum was taken as the lesser of the spectral response acceleration at any period from the PSHA and DSHA, and the site-specific general response spectrum was determined by taking two-thirds of the  $MCE_R$  response spectrum with some conditions in accordance with Section 21.3 of ASCE 7-16. Figure 5 presents the site-specific  $MCE_R$  response spectrum and the site-specific design response spectrum. The general mapped design response spectrum calculated in accordance with Section 11.4 of ASCE 7-16 is also presented on Figure 5 for comparison. The site-specific spectral response acceleration parameters, consistent with the 2019 CBC, are provided in Section 8.4 for the evaluation of seismic loads on buildings and other structures. The site-specific modified peak ground acceleration,  $PGA_M$ , was calculated as 1.05 g.

### 6.3 Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure, and causes the soil to behave



as a fluid for a short period of time. Liquefaction is known generally to occur in saturated or near-saturated cohesionless soils at depths shallower than 50 feet. Factors known to influence liquefaction potential include composition and thickness of soil layers, grain size, relative density, groundwater level, degree of saturation, and both intensity and duration of ground shaking.

The Santa Barbara County Comprehensive Plan Seismic Safety & Safety Element (County of Santa Barbara, 2010) indicates that the subject site is located in an area with a moderate rating for liquefaction (Figure 6). Based on the relatively shallow depth to claystone and sandstone bedrock materials encountered during our subsurface exploration, liquefaction is not a design consideration for the project.

#### **6.4 Flood and Tsunami Hazards**

Based on our review of the City of Goleta Fire, Flood and Tsunami Hazards map (City of Goleta, 2016), the project site is not located in the 100-year Flood Hazard Zone, but is located within the 500-year flood zone (Figure 7).

Tsunamis are long wavelength seismic, sea waves (long compared to ocean depth) generated by the sudden movements of the ocean floor during submarine earthquakes, landslides, or volcanic activity. The project area is not mapped within an area considered susceptible to tsunami inundation. Therefore, damage due to tsunamis is not a design consideration for this project.

#### **6.5 Landslides**

Based on our site reconnaissance and review of published geologic maps, and stereoscopic aerial photographs as well as review of the City of Goleta Geologic Hazards Map (City of Goleta, 2009), landslides are not considered to be a potential hazard at the site.

### **7 CONCLUSIONS**

Based on our evaluation, it is our opinion that proposed construction is feasible from a geotechnical perspective, provided the recommendations presented in this report are incorporated into the design and construction of the project. In general, the following additional conclusions were made:

- The site is underlain by fill soils consisting of silty sand, terrace deposits consisting of unconsolidated sand, silty sandstone and silty claystone, and siltstone bedrock materials of the Monterey Formation.

- The existing fill materials have relatively low blow counts and are not considered suitable to support the new digester. Remedial grading will be appropriate to remove the fill to competent native materials. The fill may be reused provided it is placed as engineered, compacted fill.
- The existing fill soils and terrace deposits generally are composed of granular soils that may be subject to caving. These materials should be considered Type C soils in accordance with Occupational Safety and Health Administration (OSHA) soil classifications.
- Based on materials observed during our site reconnaissance and encountered in our exploratory borings, excavations in fill, terrace deposits are considered feasible with heavy duty equipment in good working order.
- Groundwater was encountered at a depth of 57 feet during drilling. Groundwater is not anticipated to be encountered during excavations for this project. However, fluctuations in the groundwater level may occur as a result of variations in seasonal precipitation, irrigation practices, and other factors.
- The subject site is not located within a State of California Earthquake Fault Zone. However, the site is located near the More Ranch Fault, which is considered active by the County of Santa Barbara.
- The site modified PGAM was estimated to be 1.05g.
- Our laboratory corrosion testing indicates that the near-surface site soils should be considered non-corrosive based on California Department of Transportation (Caltrans, 2018) corrosion guidelines.

## 8 RECOMMENDATIONS

The following sections present our geotechnical recommendations for construction of the proposed improvements. These recommendations are based on our evaluation of the site geotechnical conditions and our understanding of the proposed construction. The proposed construction should be performed in accordance with the recommendations presented in this report, project specifications, the Goleta Sanitary District, and appropriate agency standards.

### 8.1 Earthwork

Earthwork at the site is anticipated to consist of the following:

- Excavations on the order of 8 feet deep for the proposed new digester.
- Remedial grading to remove fill and loose native materials to competent materials in the area of the new digester.
- Cut and fill grading to create a pad for the proposed new CHP
- Excavation and backfill of trenches for new pipelines.

Earthwork operations should be performed in accordance with the requirements of applicable governing agencies and the recommendations presented in the following sections of this report.

Detailed construction drawings were not available for our review at the time this report was prepared. When construction drawings are available, they should be reviewed by Ninyo & Moore. Revised remedial grading recommendations may be appropriate.

### **8.1.1 Pre-Construction Conference**

We recommend that a pre-construction conference be held. The owner and/or their representative, the governing agencies' representatives, the civil engineer, Ninyo & Moore, and the contractor should be in attendance to discuss the work plan and project schedule and earthwork requirements.

### **8.1.2 Site Preparation**

Prior to performing excavations or other earthwork, the site should be cleared of existing debris, vegetation, and loose or otherwise unsuitable soils. Obstructions that extend below the finished grade should be removed and the resulting holes filled with compacted soil. Materials generated from the clearing operations should be removed from the project site and disposed of at a legal dump site.

### **8.1.3 Remedial Grading for Proposed Structures**

Based on our subsurface exploration, approximately 8 feet of fill is present beneath the proposed Digester 4 and CHP. The existing fill was observed to be relatively loose and remedial grading is recommended to prepare the areas for the new structures. The majority of the existing fill will be removed by the planned excavation for Digester 4. However, where the fill is not removed, additional excavation should be performed such that the undocumented fill and loose surficial soils are removed to expose competent native materials. The remedial grading should extend approximately 5 feet beyond the perimeter of the digester.

We understand that the CHP system container will be mounted to a concrete slab. We recommend that remedial grading is performed to provide approximately 3 feet of compacted fill below the bottom of the mat foundation. The limits of the excavation should extend laterally so that the bottom of the excavation is approximately 3 feet beyond the edge of the mat foundation.

The excavation bottoms should be evaluated by our representative during construction. Additional overexcavation of loose, soft, wet and/or undocumented fill may be appropriate depending on the conditions exposed during grading. The exposed subgrade should be scarified to approximately 8 inches deep, moisture conditioned, and compacted prior to the placement of new fill.

#### **8.1.4 Excavation Characteristics**

Based on our exploratory borings and review of geologic background materials, we anticipate that excavations on the order of 8 feet deep within the fill and terrace deposits at the site may generally be accomplished with grading and excavating equipment in good operating condition. Excavations are not anticipated to encounter the deeper claystone and sandstone terrace deposit materials that would involve additional excavating effort.

#### **8.1.5 Excavation Stability and Temporary Shoring**

There is limited working space due to existing structures and buried pipelines that will be protected in-place during construction of the project, therefore, shoring is anticipated in order to perform excavations for the proposed digester and other pipeline excavations. Temporary near-vertical excavations not exceeding a depth of approximately 4 feet should be feasible; however, excavations that expose friable sand and silt with low cohesion may be subject to caving. Excavations that are unstable or deeper than 4 feet should be laid back to slope inclinations of approximately 1½:1 (horizontal to vertical) or flatter. Where excavations cannot be laid back, shoring is appropriate. Excavations should be performed in accordance with OSHA's regulations. On-site soils should be considered as Type C soils in accordance with OSHA guidelines.

If shoring systems are used for site excavations, they should be designed for the anticipated soil conditions using the lateral earth pressure values presented on Figures 8 and 9 for cantilevered and braced shoring systems, respectively. The recommended design pressures are based on the assumption that the shoring system is constructed without raising the ground surface elevation behind the shored sidewalls of the excavation, that there are no surcharge loads, such as soil stockpiles and construction materials, and that no loads act above a 1:1 (horizontal to vertical) plane ascending from the base of the shoring system. For a shoring system subjected to the above-mentioned surcharge loads, the contractor should include the effect of these loads on the lateral earth pressures acting on the shored walls.

We anticipate that settlement of the ground surface will occur behind the shored excavation. The amount of settlement depends heavily on the type of shoring system, the contractor's workmanship, and soil conditions. To reduce the potential for distress to adjacent improvements, we recommend that the shoring system be designed to limit the ground settlement behind the shoring system to ½ inch or less. Possible causes of settlement that should be addressed include settlement during installation of the shoring elements, excavation for structure construction, construction vibrations, and removal of the support system. We recommend that shoring installation be evaluated carefully by the contractor prior

to construction and that ground vibration and settlement monitoring be performed during construction.

The contractor should retain a qualified and experienced engineer to design the shoring system. The shoring parameters presented in this report are minimum requirements, and the contractor should evaluate the adequacy of these parameters and make the appropriate modifications for their design. We recommend that the contractor take appropriate measures to protect workers. OSHA requirements pertaining to worker safety should be observed.

#### **8.1.6 Fill Material**

In general, the on-site soils should be suitable for use as fill materials provided the soils are free of trash, debris, roots, contamination, deleterious materials, and cobbles or hard lumps of material over 4 inches in diameter. Cobbles or hard lumps larger than 4 inches should be broken into small fragments or removed from the site. Wet soils, or soil with a relatively high moisture content, if encountered during excavation, should be allowed to dry to near the laboratory optimum moisture content prior to their placement as backfill. In the event that drying of on-site soil is not feasible, imported granular soil should be used for backfill.

Imported soil should consist of clean, granular material that generally meets Standard Specifications for Public Works Construction (Greenbook) criteria for structure backfill. Soil should also be tested for corrosive properties prior to importing. We recommend that the imported materials meet the Caltrans (2018) criteria for non-corrosive soils (i.e., soils having a chloride concentration of 500 parts per million (ppm) or less, a soluble sulfate content of approximately 0.20 percent (2,000 ppm) or less, a pH value of 5.5 or higher, and a resistivity of 1,100 ohm-centimeters [ohm-cm] or higher). Materials for use as fill should be evaluated by the project geotechnical consultant prior to importing. The contractor should be responsible for the uniformity of import material brought to the site.

#### **8.1.7 Fill Placement and Compaction**

Fill material, including trench backfill, should be moisture conditioned and compacted in horizontal lifts to a relative compaction of 90 percent or more as evaluated by ASTM International (ASTM) D 1557. Fill material should be moisture-conditioned to slightly above the laboratory optimum moisture content. The lift thickness for fill soils will depend on the type of compaction equipment used but generally should not exceed 8 inches in loose thickness. Special care should be exercised to avoid damaging pipes during compaction of trench backfill. Placement and compaction of the fill soils should be in general accordance with applicable grading ordinances and good construction practice.

## 8.2 Underground Utilities

We anticipate that utility pipelines will be installed as a part of the subject project that will be supported on fill and, depending on the depths, on terrace deposits. The depths of the pipelines are not known; however, we anticipate that the pipe invert depths will not exceed 10 feet. Trenches should not be excavated adjacent to footing foundations of existing structures or earthen berms. If needed, trenches can be excavated adjacent to a continuous footing or berms provided that the bottom of the trench is located above a 1:1 plane projected downward from the bottom of the adjacent footing or toe of the berm. Utility lines that cross beneath footings or berms should be encased in concrete below the footing/berm.

### 8.2.1 Pipe Bedding

We recommend that bedding material be placed around pipe zones 1 foot or more above the top of the pipe. The bedding material should be classified as sand, be generally free of organic material, and have a sand equivalent (SE) of 30 or more. We do not recommend crushed rock be used for bedding material because of the fine-grained nature of the subsurface material. It has been our experience that the voids within a crushed rock material are sufficiently large to allow fines to migrate into the voids, thereby creating the potential for sinkholes and depressions to develop at the ground surface. Where soft, wet soil conditions are encountered, the trench excavation should be excavated approximately 1 to 2 feet or more below the pipe invert and should be backfilled with gravel wrapped in filter fabric.

Special care should be taken not to allow voids beneath and around the pipe. Compaction of the bedding material and backfill should proceed up both sides of the pipe. Trench backfill, including bedding material, should be placed in accordance with the recommendations presented in the preceding section.

### 8.2.2 Modulus of Soil Reaction for Pipe Design

The modulus of soil reaction is used to characterize the stiffness of soil backfill placed at the sides of buried flexible pipelines for the purpose of evaluating deflection caused by the weight of the backfill above the pipe. A soil reaction modulus of 1,000 pounds per square inch (psi) may be used for an excavation depth of up to about 5 feet when backfilled with granular soil and compacted. A soil reaction modulus of 1,200 psi may be used for trenches deeper than 5 feet.

### 8.3 Seismic Design Considerations

Design of the proposed improvements should be performed in accordance with the requirements of governing jurisdictions and applicable building codes. Table 2 presents the seismic design parameters for the site in accordance with the CBC (2019) guidelines (ATC, 2020).

Site Coefficients and Spectral Response Acceleration Parameters	Values
Site Class	D
Mapped Spectral Response Acceleration at 0.2-second Period, $S_s$	2.366g
Mapped Spectral Response Acceleration at 1.0-second Period, $S_1$	0.830g
Site-Specific Spectral Response Acceleration at 0.2-second Period, $S_{MS}$	2.386g
Site-Specific Spectral Response Acceleration at 1.0-second Period, $S_{M1}$	2.176g
Site-Specific Design Spectral Response Acceleration at 0.2-second Period, $S_{DS}$	1.591g
Site-Specific Design Spectral Response Acceleration at 1.0-second Period, $S_{D1}$	1.451g
Site-Specific Modified Peak Ground Acceleration, $PGA_M$	1.047g

### 8.4 Foundations

The proposed digester and CHP may be supported on shallow foundations including spread footings, and mat foundation bearing on compacted fill prepared in accordance with the recommendations presented in the Earthwork section of this report. Foundations should be designed in accordance with structural considerations and the following recommendations. In addition, requirements of the appropriate governing jurisdictions and applicable building codes should be considered in the design of the structures.

#### 8.4.1 Spread Footings

Spread footings should extend 24 inches or more below the adjacent finished grade and bear on compacted fill. Spread footings should be reinforced with two No. 4 steel reinforcing bars, one placed near the top and one placed near the bottom of the footings, and further detailed in accordance with the recommendations of the structural engineer.

Footings, as described above and bearing on compacted fill, may be designed using an allowable bearing capacity of 3,000 pounds per square foot (psf). The allowable bearing capacity may be increase by 400 and 800 psf for each additional foot of width and depth, respectively, to a value of 5,000 psf. The allowable bearing capacity may be increased by one-third when considering loads of short duration such as wind or seismic forces. Total and differential settlement for footings under static load are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 40 feet, respectively.

Footings bearing on compacted fill may be designed using a coefficient of friction of 0.35, where the total frictional resistance equals the coefficient of friction times the dead load. Footings may be designed using a passive resistance of 350 psf per foot of depth for level ground condition up to a value of 3,500 psf. The allowable lateral resistance can be taken as the sum of the frictional resistance and passive resistance provided the passive resistance does not exceed one-half of the total allowable resistance. The passive resistance may be increased by one-third when considering loads of short duration such as wind or seismic forces.

#### **8.4.2 Mat Foundation**

Based on our analysis, it is our opinion that the proposed structures may be supported by mat foundations. Mat foundations should be founded approximately 2 feet below the adjacent finish grade and designed using a net allowable bearing capacity of 2,500 psf and a coefficient of friction for sliding resistance of 0.35. Under the static loading condition, the total and differential settlement corresponding to this allowable bearing load are estimated to be less than approximately 1 inch and ½ inch over a horizontal span of 30 feet, respectively.

Mat foundations typically experience some deflection due to loads placed on the mat and the reaction of the soils directly underlying the mat. A design modulus of subgrade reaction (K) of 30 tons per cubic foot (tcf) may be used for the subgrade soils in evaluating such deflections.

### **8.5 Corrosivity**

Laboratory testing was performed on representative samples of near-surface soil to evaluate soil pH, electrical resistivity, water-soluble chloride content, and water-soluble sulfate content. The soil pH and electrical resistivity tests were performed in general accordance with California Test Method (CT) 643. Chloride content tests were performed in general accordance with CT 422. Sulfate testing was performed in general accordance with CT 417.

The pH of the tested sample was measured at approximately 7.6, the electrical resistivity was measured at approximately 11,034 ohm-centimeters, the chloride content was measured at approximately 170 ppm, and the sulfate content was measured at approximately 0.002 percent (i.e., 20 ppm). Based on the laboratory test results and Caltrans (2018) corrosion criteria, the project site can be classified as a non-corrosive site, which is defined as having earth materials with less than 500 ppm chlorides, less than 0.20 percent sulfates (i.e., 2,000 ppm), a pH of 5.5 or more, or an electrical resistivity of 1,100 ohm-centimeters or more. If corrosion-susceptible



improvements are planned on site, we recommend that a corrosion engineer be consulted for further evaluation and recommendations.

## 8.6 Concrete Placement

Concrete in contact with soil or water that contains high concentrations of soluble sulfates can be subject to chemical and/or physical deterioration. Based on the CBC criteria (2016) and American Concrete Institute (ACI) criteria (ACI, 2012), the potential for sulfate attack is considered negligible for water-soluble sulfate contents in soil less than 0.10 percent by weight (1,000 ppm). The sample tested during this evaluation indicated water-soluble sulfate contents of approximately 0.002 percent by weight (i.e., about 20 ppm). Accordingly, the on-site soils are considered to have a negligible potential for sulfate attack. However, due to the potential variability in soil conditions across the site, we recommend that Type V cement with a water/cement ratio of 0.45 or less be considered for the project.

In order to reduce the potential for shrinkage cracks in the concrete during curing, we recommend that the concrete be placed with a slump of 4 inches based on ASTM C 143. The slump should be checked periodically at the site prior to concrete placement. We also recommend that crack control joints be provided in concrete sidewalks in accordance with the recommendations of the project structural engineer to reduce the potential for distress due to minor soil movement and concrete shrinkage. The project structural engineer should be consulted for additional concrete specifications.

## 8.7 Drainage

Proper surface drainage is imperative for satisfactory site performance. Positive drainage should be provided and maintained to direct surface water away from foundations and other site improvements. Positive drainage is defined as a slope of 2 percent or more over a distance of 5 feet away from the foundations and tops of slopes. Runoff should then be directed by the use of swales or pipes into a collective drainage system. Surface waters should not be allowed to pond adjacent to footings or pavements.

# 9 CONSTRUCTION OBSERVATION

The recommendations provided in this report are based on our understanding of the proposed project and on our evaluation of the data collected based on subsurface conditions disclosed by two exploratory borings. It is imperative that the interpolated subsurface conditions be checked by a qualified person during construction. Observation of foundation excavations and observation and testing of compacted fill and backfill should be performed by a qualified person during

construction. In addition, the project plans and specifications should be reviewed by Ninyo & Moore to check for conformance with the recommendations of this report prior to construction. It should be noted that, upon review of these documents, some recommendations presented in this report might be revised or modified.

During construction we recommend that the duties of the geotechnical consultant include, but not be limited to:

- Observing remedial grading and excavation bottoms and the placement and compaction of fill, including trench backfill.
- Evaluating imported materials prior to their use as fill, if used.
- Performing field tests to evaluate fill compaction.
- Observing foundation excavations for bearing materials and cleaning prior to placement of reinforcing steel or concrete.
- Performing material testing services including concrete compressive strength and steel tensile strength tests and inspections.

## **10 LIMITATIONS**

The field evaluation, laboratory testing, and geotechnical analyses presented in this geotechnical report have been conducted in general accordance with current practice and the standard of care exercised by geotechnical consultants performing similar tasks in the project area. No warranty, expressed or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be encountered during construction. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluation will be performed upon request.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document.

This report is intended for design purposes only. It does not provide sufficient data to prepare an accurate bid by contractors. It is suggested that the bidders and their geotechnical consultant perform an independent evaluation of the subsurface conditions in the project areas. The independent evaluations may include, but not be limited to, review of other geotechnical reports

prepared for the adjacent areas, site reconnaissance, and additional exploration and laboratory testing.

Our conclusions, recommendations, and opinions are based on an analysis of the observed site conditions. If geotechnical conditions different from those described in this report are encountered, our office should be notified, and additional recommendations, if warranted, will be provided upon request. It should be understood that the conditions of a site could change with time as a result of natural processes or the activities of man at the subject site or nearby sites. In addition, changes to the applicable laws, regulations, codes, and standards of practice may occur due to government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Ninyo & Moore has no control.

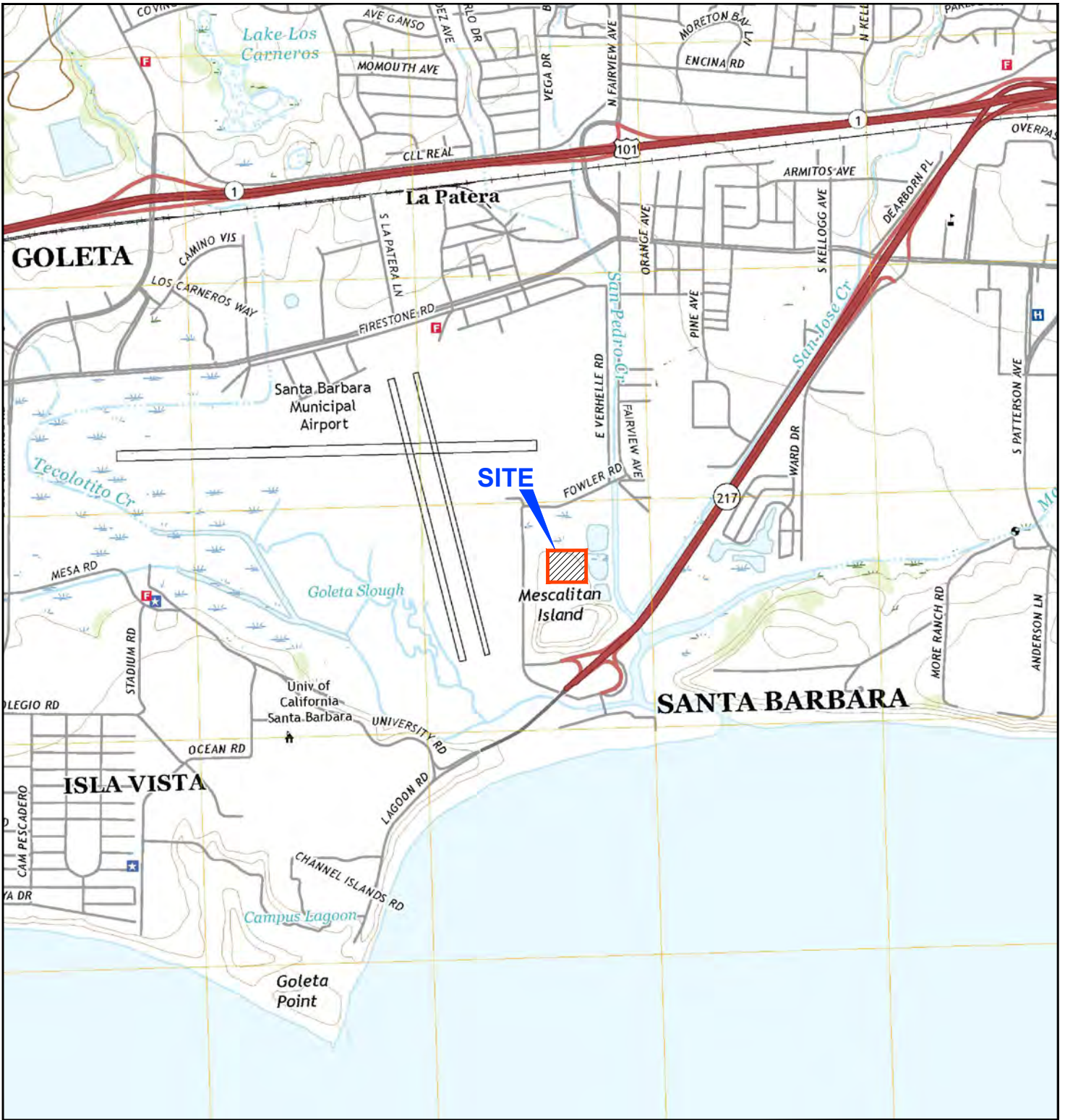
This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

## 11 REFERENCES

- Abrahamson, N.A., Silva, W.J. and Kamai, R., 2014, Summary of the ASK14 Ground Motion Relation for Active Crustal Regions, *Earthquake Spectra*: Vol. 30, No. 3, pp. 1025-1055, dated August.
- American Concrete Institute, 2019, *Building Code Requirements for Structural Concrete (ACI 318-14) and Commentary (ACI 318-14)*.
- American Society of Civil Engineers (ASCE), 2016, *Minimum Design Loads and Associated Criteria for Building and Other Structures*, ASCE Standard 7-16.
- ASTM International (ASTM), 2018, *Annual Book of ASTM Standards*, West Conshohocken, Pennsylvania.
- Applied Technology Council, 2020, *Hazards by Location*, <https://hazards.atcouncil.org/>. Boore, D.M., Stewart, J.P., Seyhan, E., and Atkinson, G.M., 2014, NGA-West2 Equations for Predicting PGA, PGV, and 5% Damped PSA for Shallow Crustal Earthquakes, *Earthquake Spectra*, Vol. 30, No. 3, pp. 1057-1085, dated August.
- Bowles, J.E., 1996, *Foundation Analysis and Design*, Fifth Edition, The McGraw-Hill Companies, Inc.
- Building News, 2018, "Greenbook" Standard Specifications for Public Works Construction: BNI Publications.
- California Building Standards Commission, 2019, *California Building Code: California Code of Regulations, Title 24, Part 2, Volumes 1 and 2*, based on the 2018 International Building Code.
- California Department of Conservation, Division of Mines and Geology, 1994, *Fault Rupture Hazard Zones in California: Special Publication 42*.
- California Department of Conservation, Division of Mines and Geology, 1996, *Probabilistic Seismic Hazard Assessment for the State of California*, Open-File Report 96-08.
- California Department of Transportation, 2018, *Corrosion Guidelines*, Version 3.0, dated March.
- California Geologic Survey, 2002, *California Geomorphic Provinces*, Note 36.
- California Geological Survey, 2008, *Guidelines for Evaluating and Mitigating Seismic Hazards in California*, Special Publication 117A, dated June.
- Campbell, K.W., and Bozorgnia, Y., 2014, NGA-West2 Ground Motion Model for the Average Horizontal Components of PGA, PGV, and 5% Damped Linear Acceleration Response Spectra, *Earthquake Spectra*, Vol. 30, No. 3, pp. 1087-1115, dated August.
- Chiou, B. S.-J., and Youngs, R.R., 2014, Update of the Chiou and Youngs NGA Model for the Average Horizontal Component of Peak Ground Motion and Response Spectra, *Earthquake Spectra*, August 2014, Vol. 30, No. 3, dated August.
- City of Goleta, 2009, *Geologic Hazards Map, General Plan/Coastal Land Use Plan*, Dated November 11.
- City of Goleta, 2016, *Fire, Flood, and Tsunami Hazards Map, General Plan/Coastal Land Use Plan*, Dated November 11.
- Earth Systems Pacific, 2009, *Fault Investigation Report, Goleta Sanitary District, Wastewater Treatment Plant Upgrade, Goleta Area of Santa Barbara County, California*, dated August 3.
- GeoTracker, 2021, [www.geotracker.waterboards.ca.gov](http://www.geotracker.waterboards.ca.gov).
- GoogleEarth, 2021, Website for Viewing Aerial Photographs, <http://maps.google.com/>.

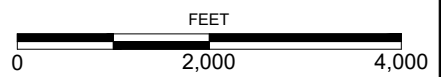
- Hart, E.W., and Bryant, W.A., 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zones Maps: California Geological Survey, Special Publication 42, with Supplement 1 added in 2012, Supplement 2 added in 2014, Supplement 3 added in 2015, and Supplement 4 added in 2016.
- Hazen and Sawyer, 2020, Goleta Sanitary District, Biosolids & Energy – Phase 1, Preliminary Design Report, Project #20063-012, Dated September 23.
- Jennings, C.W., and Bryant, W.A., 2010, Fault Activity Map: California Geological Survey, California Geologic Data Map Series, Map No. 6, Scale 1:750,000.
- Ninyo & Moore, 2020, Proposal for Geotechnical Consulting Services, New Digester 4 and Associated Piping, Goleta Sanitary District, City of Goleta, California, Proposal No. 04-03006, dated October 16.
- Norris, R.M., and Webb, R.W., 1990, Geology of California, Second Edition: John Wiley & Sons.
- Seyhan, E., 2014, Weighted Average 2014 NGA West-2 GMPE, Pacific Earthquake Engineering Research Center.
- United States Geological Survey, 2006, Preliminary Geologic Map of the Santa Barbara Coastal Plain Area, Santa Barbara County, California, Open File Report 02-136, Scale 1:24,000
- United States Geological Survey, 2008, National Seismic Hazard Maps – Fault Parameters; [https://earthquake.usgs.gov/cfusion/hazfaults\\_2008\\_search/query\\_results.cfm](https://earthquake.usgs.gov/cfusion/hazfaults_2008_search/query_results.cfm)
- United States Geological Survey and Southern California Earthquake Center, 2020a, Open Seismic Hazard Analysis, <http://www.opensha.org/>.
- United States Geological Survey, 2020b, Unified Hazard Tool; <https://earthquake.usgs.gov/hazards/interactive/>.

# FIGURES



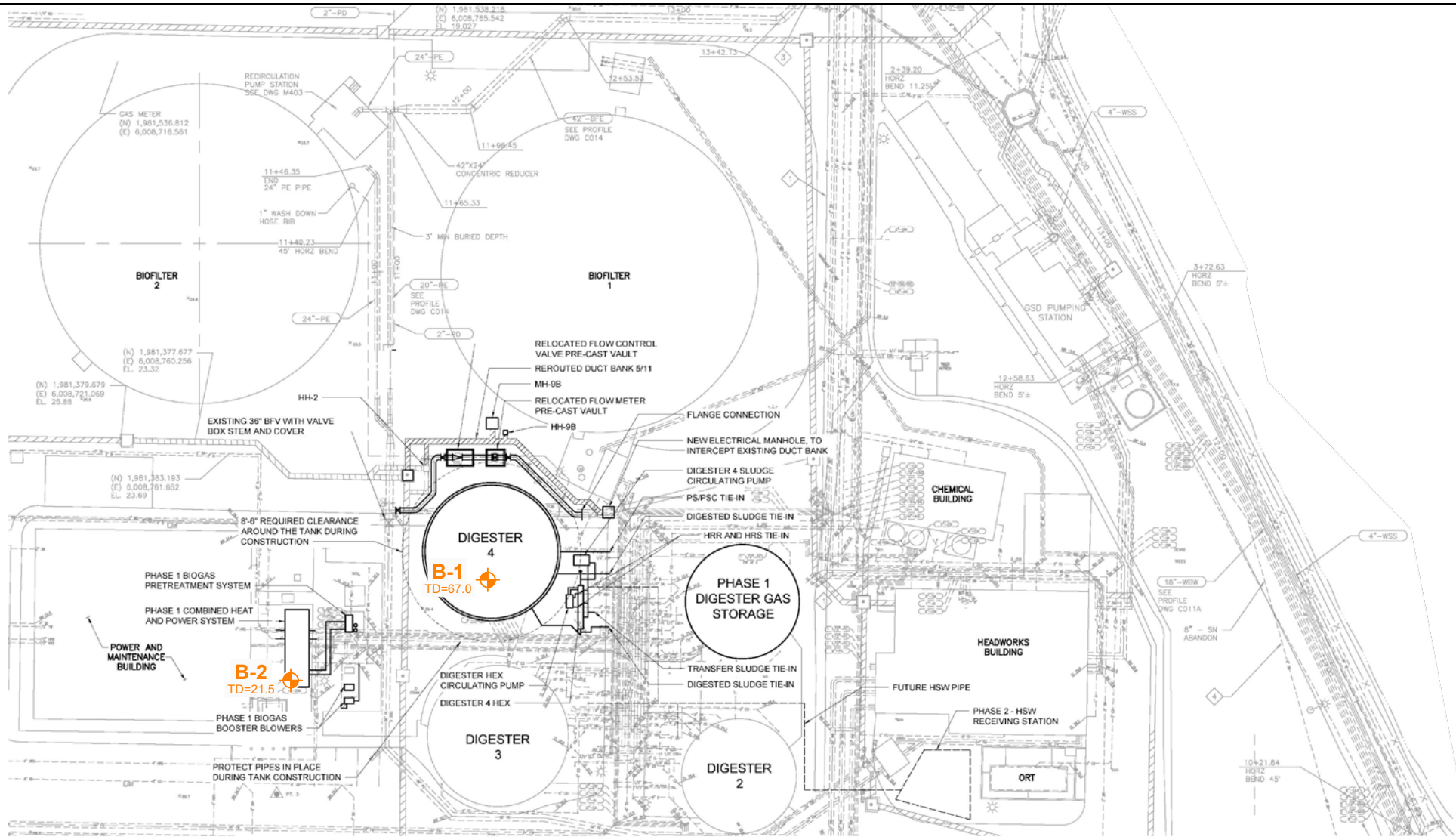
211573001\_SL.dwg 01/25/2021 JDP

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE: USGS, 2018.



**FIGURE 1**

211573001\_SP.dwg 01/25/2021 JDP

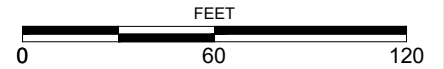


NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE: HAZEN AND SAWYER, 2020.

**LEGEND**

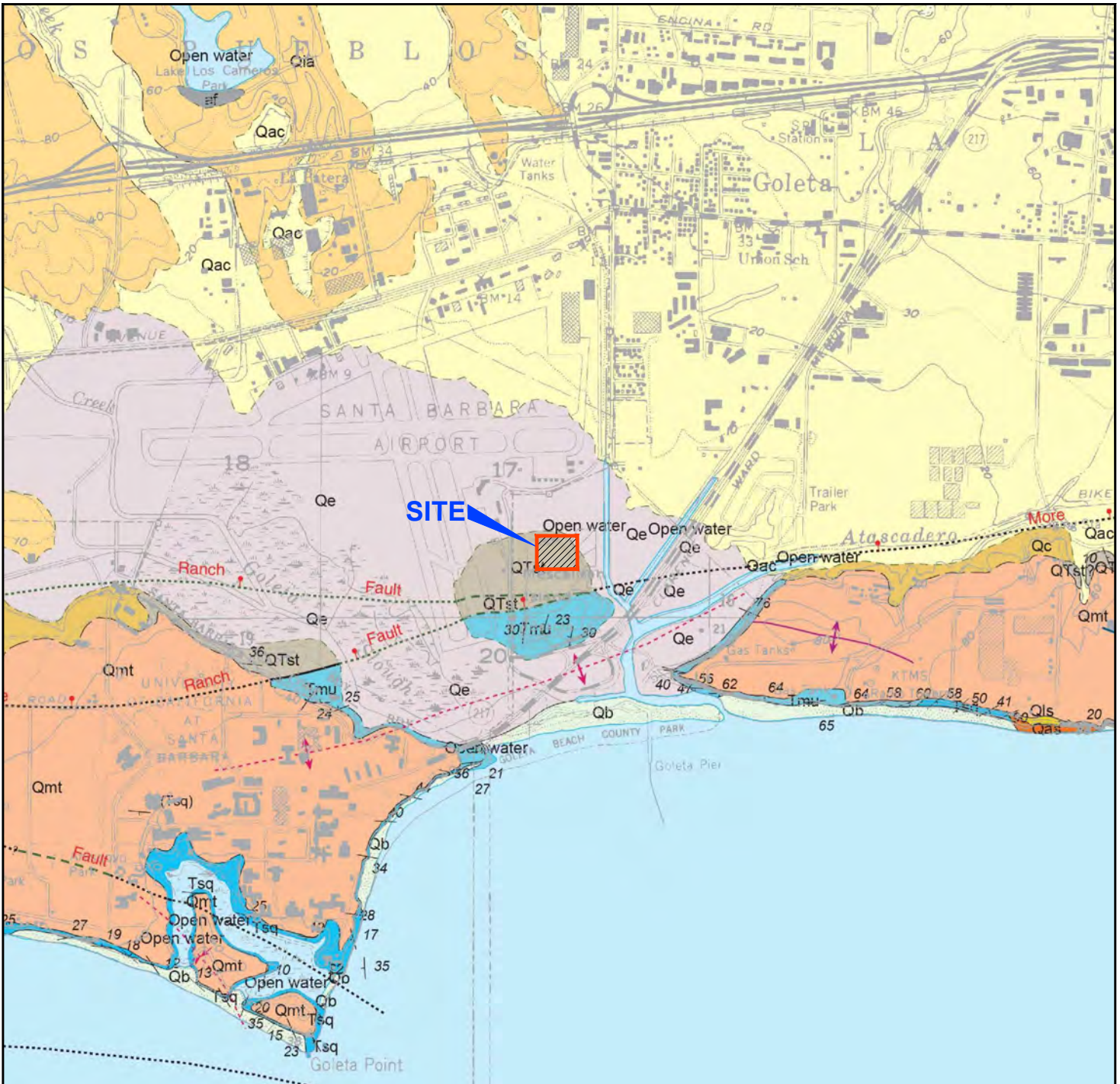


BORING;  
TD=TOTAL DEPTH IN FEET










**FIGURE 2**

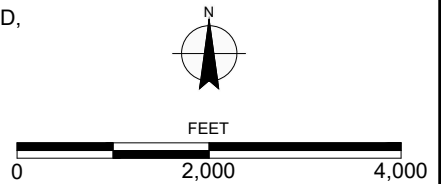




**LEGEND**

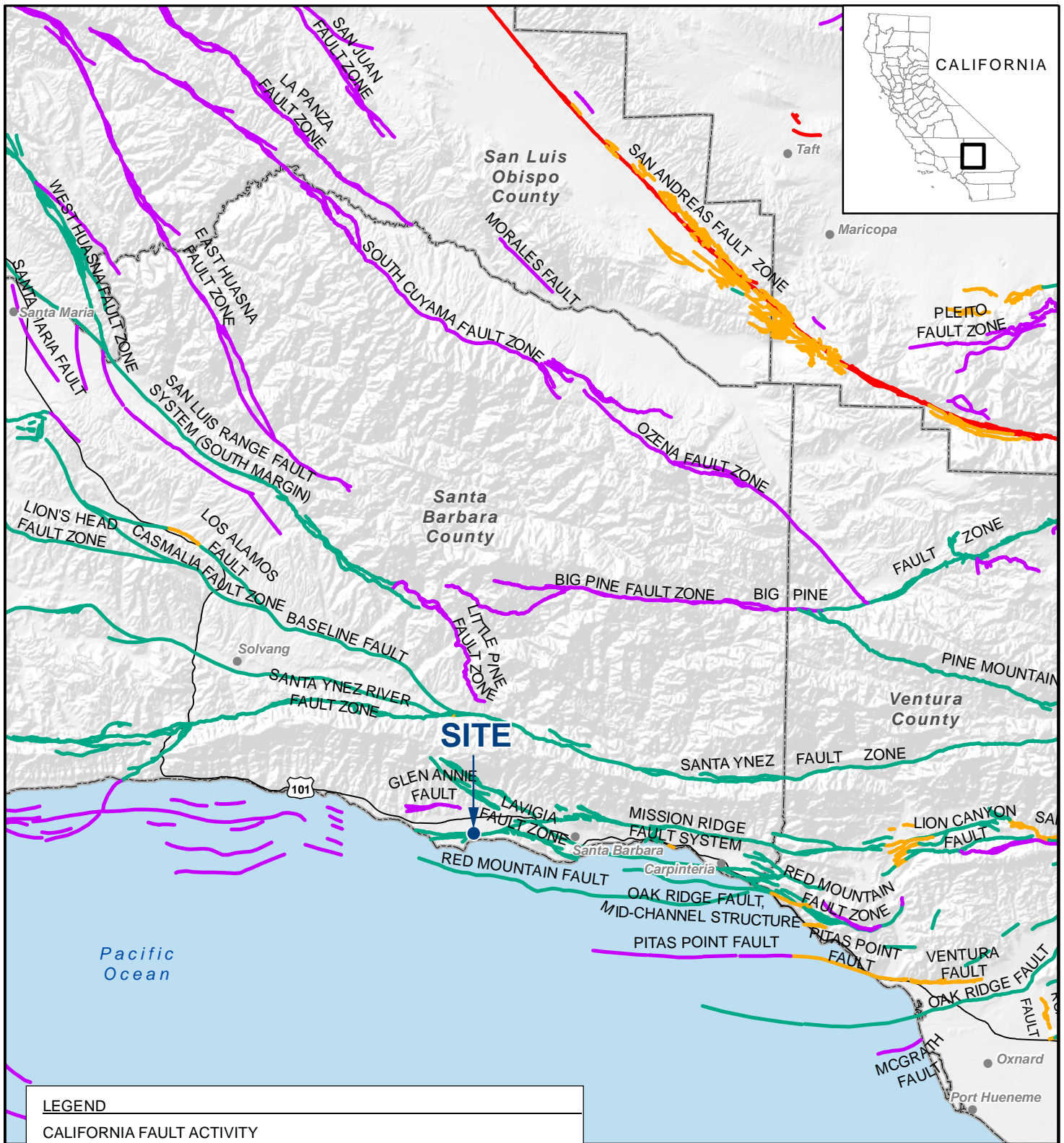
	BEACH DEPOSITS		MONTEREY FORMATION, UPPER SILICEOUS UNIT
	ESTUARINE DEPOSITS		FAULT (DASHED WHERE INFERRED, DOTTED WHERE CONCEALED)
	MARINE TERRACE DEPOSITS		GEOLOGIC CONTACT
	SILTSTONE UNIT		

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE: SCOTT A. MINOR, ET AL., 2006.



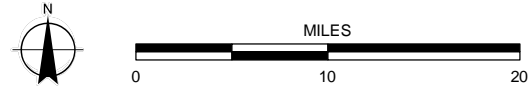
211573001\_RG.dwg 01/25/2021 JDP

**FIGURE 3**



LEGEND	
CALIFORNIA FAULT ACTIVITY	
<span style="color: red;">—</span>	HISTORICALLY ACTIVE
<span style="color: orange;">—</span>	HOLOCENE ACTIVE
<span style="color: green;">—</span>	LATE QUATERNARY (POTENTIALLY ACTIVE)
<span style="color: purple;">—</span>	QUATERNARY (POTENTIALLY ACTIVE)
<span style="color: blue;">—</span>	QUATERNARY (INACTIVE)
<span style="border-bottom: 1px solid black;">  </span>	STATE/COUNTY BOUNDARY

SOURCES: CALIFORNIA DIVISION OF MINES AND GEOLOGY, 1976; ENVIRONMENTAL GEOLOGY OF ORANGE COUNTY, CALIFORNIA, OPEN FILE REPORT 79-8.; JENNINGS, C.W., AND BRYANT, 2010, FAULT ACTIVITY MAP OF CALIFORNIA; ESRI SHADED RELIEF, 2017



NOTE: DIRECTIONS, DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

**FIGURE 4**

**FAULT LOCATIONS**

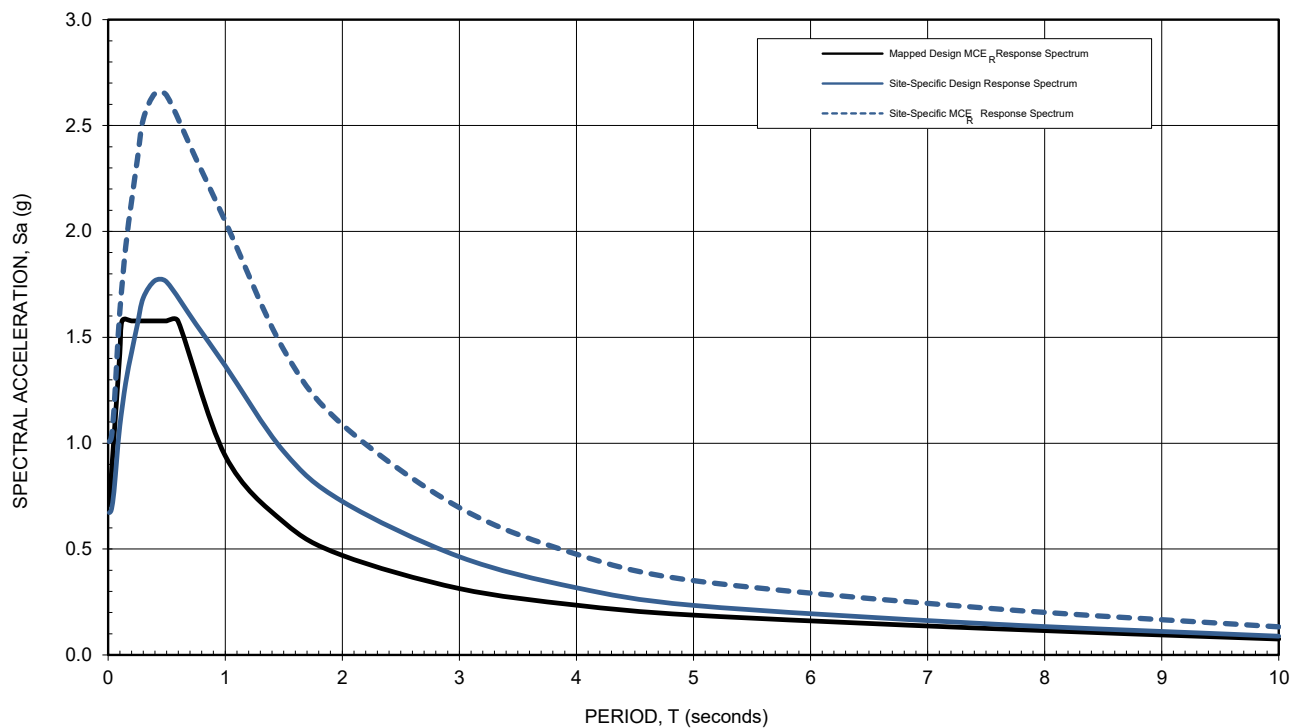
DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1  
 PROJECT GOLETA SANITARY DISTRICT  
 GOLETA, CALIFORNIA  
 211573001 | 1/21

211231003\_FL2.mxd 1/21/2021 JDL

PERIOD (seconds)	SITE-SPECIFIC MCE <sub>R</sub> RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.010	1.008	0.672
0.020	1.014	0.676
0.030	1.037	0.691
0.050	1.157	0.771
0.075	1.399	0.933
0.100	1.623	1.082
0.150	1.927	1.284
0.200	2.142	1.428
0.250	2.340	1.560
0.300	2.529	1.686
0.400	2.651	1.768

PERIOD (seconds)	SITE-SPECIFIC MCE <sub>R</sub> RESPONSE SPECTRUM Sa (g)	SITE-SPECIFIC DESIGN RESPONSE SPECTRUM Sa (g)
0.500	2.642	1.761
0.750	2.344	1.562
1.000	2.049	1.366
1.500	1.442	0.961
2.000	1.088	0.725
3.000	0.696	0.464
4.000	0.476	0.317
5.000	0.351	0.234
7.500	0.221	0.148
10.000	0.133	0.089

$S_{DS} = 1.591 \text{ g}$     $S_{D1} = 1.451 \text{ g}$     $S_{MS} = 2.386 \text{ g}$     $S_{M1} = 2.176 \text{ g}$     $PGA_M = 1.047 \text{ g}$



**NOTES:**

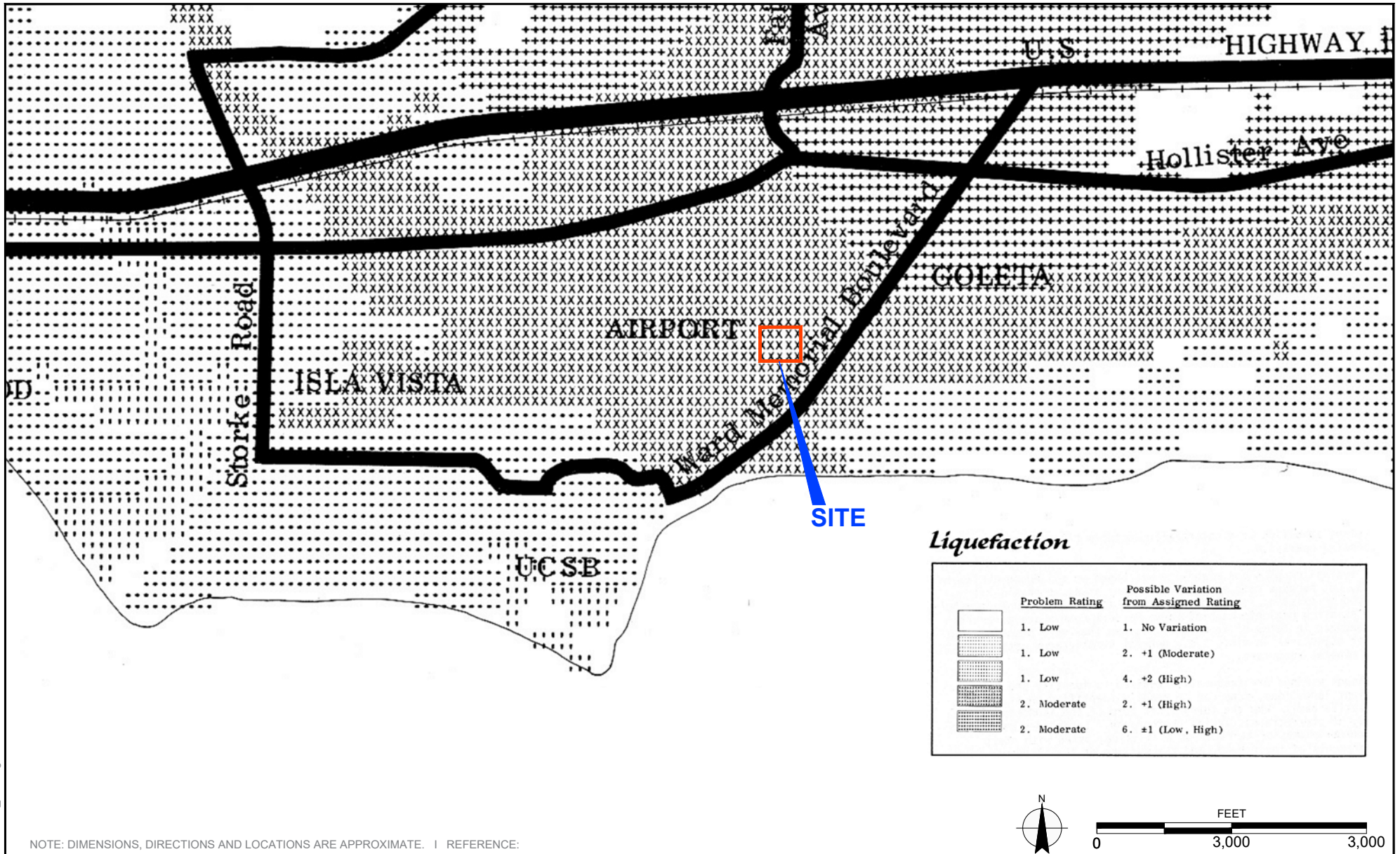
- 1 The probabilistic ground motion spectral response accelerations are based on the risk-targeted Maximum Considered Earthquake (MCE<sub>R</sub>) having a 2% probability of exceedance in 50 years in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships and the risk coefficients.
- 2 The deterministic ground motion spectral response accelerations are for the 84th percentile of the geometric mean values in the maximum direction using the Chiou & Youngs (2014), Campbell & Bozorgnia (2014), Boore et al. (2014), and Abrahamson et al. (2014) attenuation relationships for deep soil sites considering a Mw 7.4 event on the Red Mountain Fault fault zone located 4.1 kilometers from the site. It conforms with the lower bound limit per ASCE 7-16 Section 21.2.2.
- 3 The Site-Specific MCE<sub>R</sub> Response Spectrum is the lesser of spectral ordinates of deterministic and probabilistic accelerations at each period per ASCE 7-16 Section 21.2.3. The Site-Specific Design Response Spectrum conforms with lower bound limit per ASCE 7-16 Section 21.3.
- 4 The Mapped Design MCE<sub>R</sub> Response Spectrum is computed from mapped spectral ordinates modified for Site Class D (stiff soil profile) per ASCE 7-16 Section 11.4. It is presented for the sake of comparison.

**FIGURE 5**

**ACCELERATION RESPONSE SPECTRA**

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT  
GOLETA, CALIFORNIA

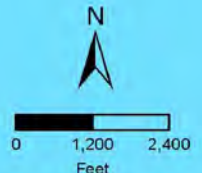
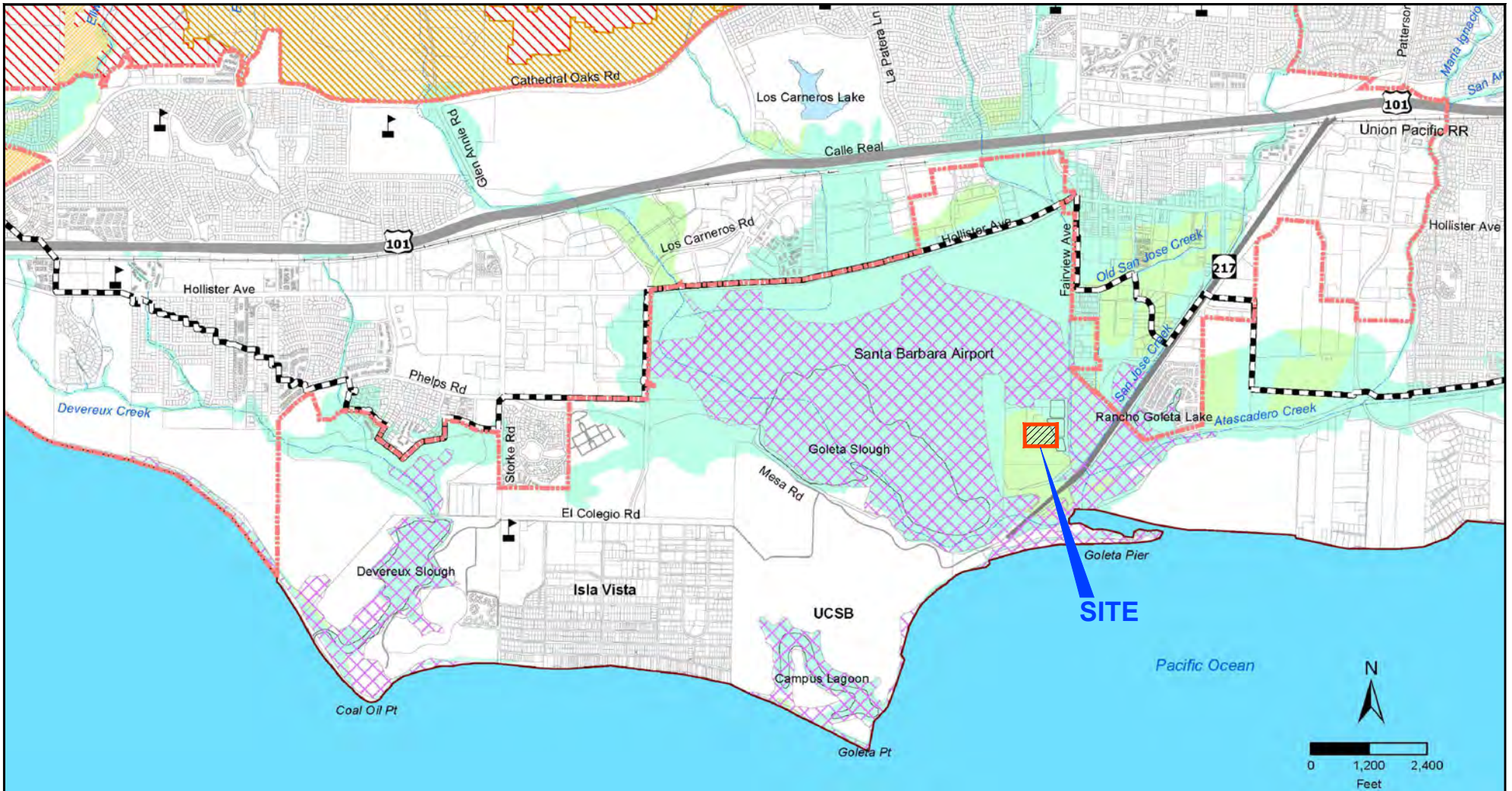
211573001\_LH.dwg 01/25/2021 JDP



NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE:

FIGURE 6

211573001\_FTH.dwg 01/25/2021\_JDP

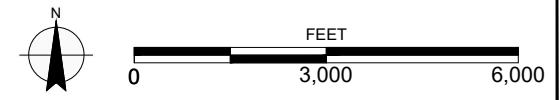


**LEGEND**

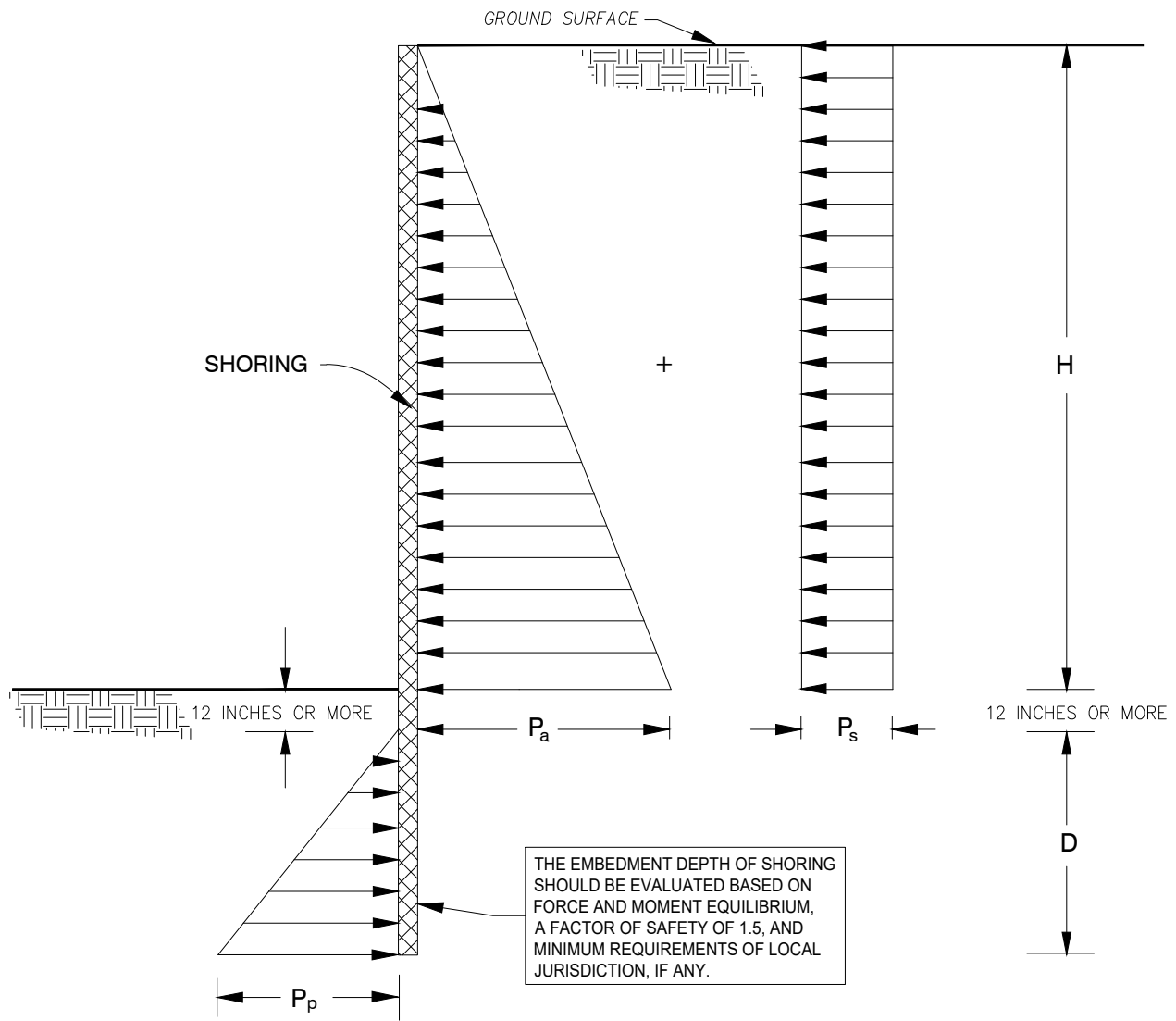
Flood Hazard	Fire Hazard Severity Zones	Tsunami Hazard	Other Features
500 Year Flood Zone	Slate Responsibility Area	Tsunami Inundation Area	Goleta City Boundary
100 Year Flood Zone	Moderate		Coastal Zone
	High		Creeks
	Very High		Schools

**Source:**  
 The fire hazard severity zones were obtained from the California Department of Forestry and Fire Protection Fire Hazard Severity Zones map dated 11/07/07. The 100 and 500 year flood zone was mapped by the Federal Emergency Management Agency (FEMA), per Flood Insurance Rate Map (FIRM) dated September 30, 2005. The tsunami inundation area was modeled by the University of Southern California, funded through the California Emergency Management Agency by the National Tsunami Hazard Mitigation Program, and depicted on the Tsunami Map for Emergency Planning, Dos Pueblos Canyon and Goleta Quadrangles, dated 01/31/09.

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE. | REFERENCE:



**FIGURE 7**



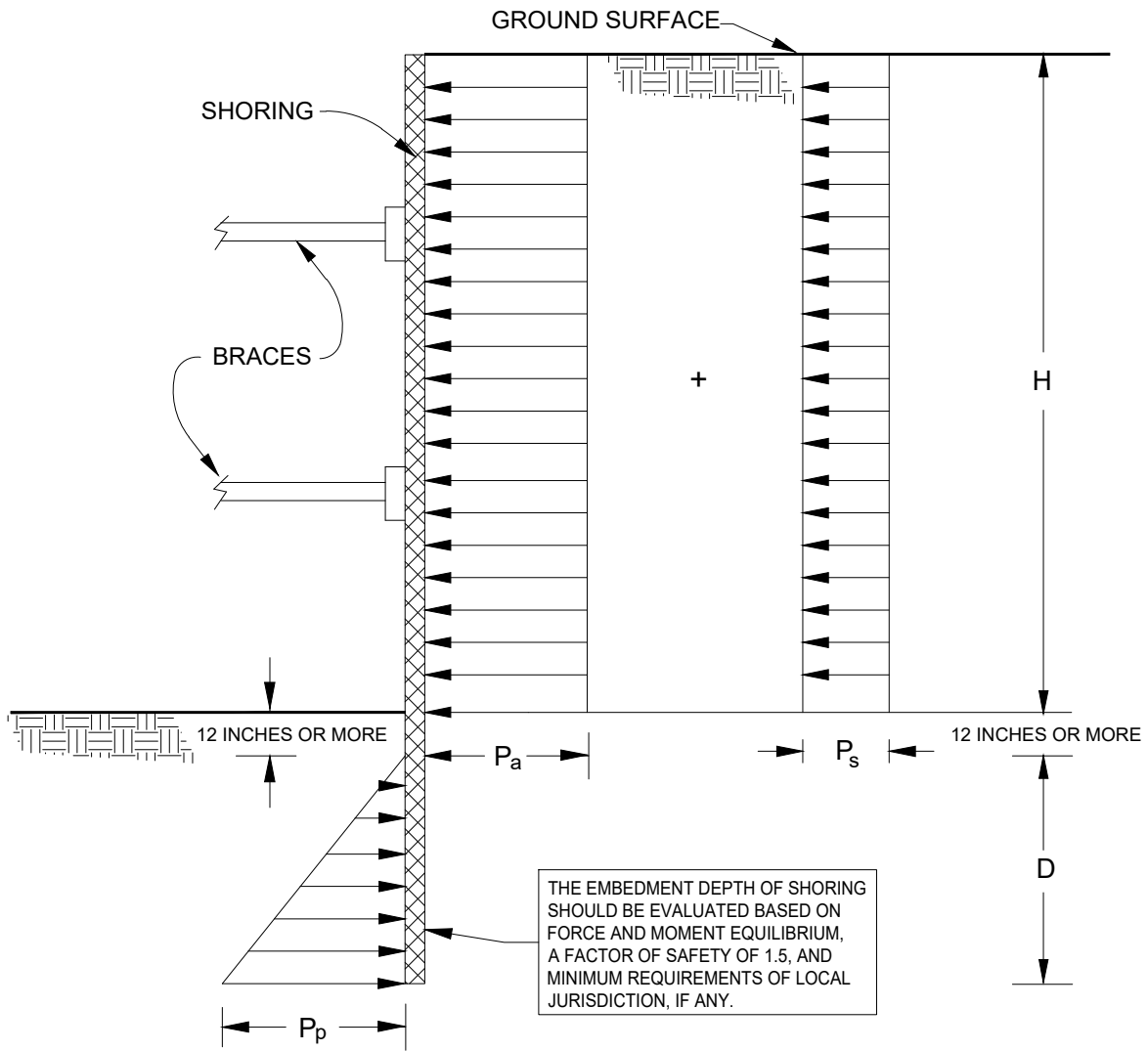
**NOTES:**

1. ACTIVE LATERAL EARTH PRESSURE,  $P_a$   
 $P_a = 33H$  psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE,  $P_s$   
 $P_s = 72$  psf
3. PASSIVE LATERAL EARTH PRESSURE,  $P_p$   
 $P_p = 350D$  psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. H AND D ARE IN FEET

NOT TO SCALE

**FIGURE 8**

**LATERAL EARTH PRESSURES FOR  
TEMPORARY CANTILEVERED SHORING**  
DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT  
GOLETA SANITARY DISTRICT  
GOLETA, CALIFORNIA



**NOTES:**

1. APPARENT LATERAL EARTH PRESSURE,  $P_a$   
 $P_a = 22H$  psf
2. CONSTRUCTION TRAFFIC INDUCED SURCHARGE PRESSURE,  $P_s$   
 $P_s = 120$  psf
3. PASSIVE LATERAL EARTH PRESSURE,  $P_p$   
 $P_p = 350D$  psf
4. ASSUMES GROUNDWATER IS NOT PRESENT
5. SURCHARGES FROM EXCAVATED SOIL OR CONSTRUCTION MATERIALS ARE NOT INCLUDED
6. H AND D ARE IN FEET

NOT TO SCALE

**FIGURE 9**

**LATERAL EARTH PRESSURES FOR BRACED EXCAVATION (GRANULAR SOIL)**

DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT  
GOLETA SANITARY DISTRICT  
GOLETA, CALIFORNIA

# APPENDIX A

## Boring Logs



# APPENDIX A

## BORING LOG

### **Field Procedure for the Collection of Disturbed Samples**

Disturbed soil samples were obtained in the field using the following method.

#### **Bulk Samples**

Bulk samples of representative earth materials were obtained from the exploratory borings. The samples were bagged and transported to the laboratory for testing.

#### **The Standard Penetration Test (SPT) Sampler**

Disturbed drive samples of earth materials were obtained by means of a Standard Penetration Test sampler. The sampler is composed of a split barrel with an external diameter of 2 inches and an unlined internal diameter of 1-3/8 inches. The sampler was driven into the ground 12 to 18 inches with a 140-pound hammer falling freely from a height of 30 inches in general accordance with ASTM D 1586. The blow counts were recorded for every 6 inches of penetration; the blow counts reported on the logs are those for the last 12 inches of penetration. Soil samples were observed and removed from the sampler, bagged, sealed and transported to the laboratory for testing.




### **Field Procedure for the Collection of Relatively Undisturbed Samples**

Relatively undisturbed soil samples were obtained in the field using the following method.

#### **The Modified Split-Barrel Drive Sampler**

The sampler, with an external diameter of 3 inches, was lined with 1-inch-long, thin brass rings with inside diameters of approximately 2.4 inches. The sample barrel was driven into the ground with the weight of a hammer in general accordance with ASTM D 3550-01. The driving weight was permitted to fall freely. The approximate length of the fall, the weight of the hammer, and the number of blows per foot of driving are presented on the boring logs as an index to the relative resistance of the materials sampled. The samples were removed from the sample barrel in the brass rings, sealed, and transported to the laboratory for testing.

# BORING LOG EXPLANATION SHEET

DEPTH (feet)	SAMPLES		BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	
	Bulk	Driven						
0	XX/XX							Bulk sample.  Modified split-barrel drive sampler.  No recovery with modified split-barrel drive sampler.  Sample retained by others.  Standard Penetration Test (SPT).  No recovery with a SPT.  Shelby tube sample. Distance pushed in inches/length of sample recovered in inches.  No recovery with Shelby tube sampler.  Continuous Push Sample.  Seepage. Groundwater encountered during drilling. Groundwater measured after drilling.
5								
10								
15							SM	MAJOR MATERIAL TYPE (SOIL): Solid line denotes unit change.
15							CL	Dashed line denotes material change.  Attitudes: Strike/Dip b: Bedding c: Contact j: Joint f: Fracture F: Fault cs: Clay Seam s: Shear bss: Basal Slide Surface sf: Shear Fracture sz: Shear Zone sbs: Shear Bedding Surface
20								The total depth line is a solid line that is drawn at the bottom of the boring.

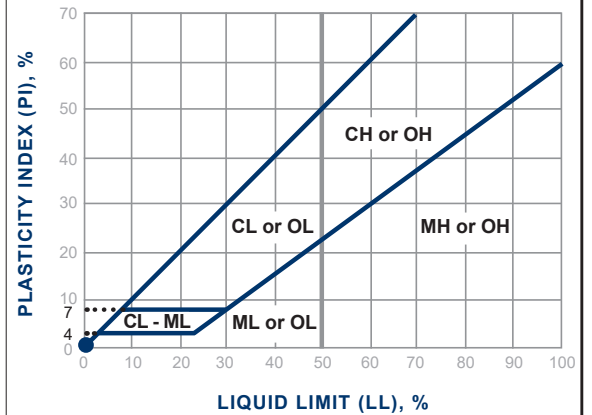
## Soil Classification Chart Per ASTM D 2488

Primary Divisions		Secondary Divisions			
		Group Symbol	Group Name		
<b>COARSE-GRAINED SOILS</b> more than 50% retained on No. 200 sieve	<b>GRAVEL</b> more than 50% of coarse fraction retained on No. 4 sieve	CLEAN GRAVEL less than 5% fines	GW	well-graded GRAVEL	
			GP	poorly graded GRAVEL	
		GRAVEL with DUAL CLASSIFICATIONS 5% to 12% fines	GW-GM	well-graded GRAVEL with silt	
			GP-GM	poorly graded GRAVEL with silt	
			GW-GC	well-graded GRAVEL with clay	
			GP-GC	poorly graded GRAVEL with clay	
			GM	silty GRAVEL	
		GRAVEL with FINES more than 12% fines	GC	clayey GRAVEL	
			GC-GM	silty, clayey GRAVEL	
	SW		well-graded SAND		
	SP		poorly graded SAND		
	<b>SAND</b> 50% or more of coarse fraction passes No. 4 sieve	CLEAN SAND less than 5% fines	SW-SM	well-graded SAND with silt	
			SP-SM	poorly graded SAND with silt	
		SAND with DUAL CLASSIFICATIONS 5% to 12% fines	SW-SC	well-graded SAND with clay	
			SP-SC	poorly graded SAND with clay	
			SM	silty SAND	
		SAND with FINES more than 12% fines	SC	clayey SAND	
			SC-SM	silty, clayey SAND	
<b>SILT and CLAY</b> liquid limit less than 50%			INORGANIC	CL	lean CLAY
				ML	SILT
	CL-ML	silty CLAY			
ORGANIC	OL (PI > 4)	organic CLAY			
	OL (PI < 4)	organic SILT			
<b>SILT and CLAY</b> liquid limit 50% or more	INORGANIC	CH	fat CLAY		
		MH	elastic SILT		
	ORGANIC	OH (plots on or above "A"-line)	organic CLAY		
		OH (plots below "A"-line)	organic SILT		
	Highly Organic Soils	PT	Peat		

## Grain Size

Description	Sieve Size	Grain Size	Approximate Size
Boulders	> 12"	> 12"	Larger than basketball-sized
Cobbles	3 - 12"	3 - 12"	Fist-sized to basketball-sized
Gravel	Coarse	3/4 - 3"	Thumb-sized to fist-sized
	Fine	#4 - 3/4"	Pea-sized to thumb-sized
Sand	Coarse	#10 - #4	Rock-salt-sized to pea-sized
	Medium	#40 - #10	Sugar-sized to rock-salt-sized
	Fine	#200 - #40	Flour-sized to sugar-sized
Fines	Passing #200	< 0.0029"	Flour-sized and smaller

## Plasticity Chart



## Apparent Density - Coarse-Grained Soil

Apparent Density	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Loose	≤ 4	≤ 8	≤ 3	≤ 5
Loose	5 - 10	9 - 21	4 - 7	6 - 14
Medium Dense	11 - 30	22 - 63	8 - 20	15 - 42
Dense	31 - 50	64 - 105	21 - 33	43 - 70
Very Dense	> 50	> 105	> 33	> 70

## Consistency - Fine-Grained Soil

Consistency	Spooling Cable or Cathead		Automatic Trip Hammer	
	SPT (blows/foot)	Modified Split Barrel (blows/foot)	SPT (blows/foot)	Modified Split Barrel (blows/foot)
Very Soft	< 2	< 3	< 1	< 2
Soft	2 - 4	3 - 5	1 - 3	2 - 3
Firm	5 - 8	6 - 10	4 - 5	4 - 6
Stiff	9 - 15	11 - 20	6 - 10	7 - 13
Very Stiff	16 - 30	21 - 39	11 - 20	14 - 26
Hard	> 30	> 39	> 20	> 26

DEPTH (feet)	BULK SAMPLES Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
							12/23/20	B-1	
							GROUND ELEVATION	SHEET	OF
							29' ± (MSL)	1	2
							METHOD OF DRILLING 8" Hollow-Stem Auger (S/G Drilling)		
							DRIVE WEIGHT	DROP	
							40 lbs. (Auto. Trip Hammer)	30"	
							SAMPLED BY	LOGGED BY	REVIEWED BY
							BAA	BAA	MLP
							<b>DESCRIPTION/INTERPRETATION</b>		
0						SM	FILL: Brown, moist, medium dense, silty SAND.		
		8					Loose.		
10		37	8.3	92.6		SP-SM	TERRACE DEPOSITS: Pale yellow, moist, medium dense, poorly graded SAND with silt.		
		17					Orange brown, moist, soft, weakly indurated, silty CLAYSTONE; pale yellow silty sand lenses (1 to 2 inches thick).		
20		14	35.6	98.9			@ 20': Gray-brown with iron oxide staining.		
		14							
30		90/11"					Orange to pale yellow, moist, moderately hard, weakly cemented, silty SANDSTONE.		
		50/5"							
40									

**FIGURE A-1**

DEPTH (feet)	SAMPLES Bulk Driven	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED	BORING NO.	
							12/23/20	B-1	
							GROUND ELEVATION	SHEET	OF
							29' ± (MSL)	2	2
							METHOD OF DRILLING 8" Hollow-Stem Auger (S/G Drilling)		
							DRIVE WEIGHT	DROP	
							40 lbs. (Auto. Trip Hammer)	30"	
							SAMPLED BY	LOGGED BY	REVIEWED BY
							BAA	BAA	MLP
							<b>DESCRIPTION/INTERPRETATION</b>		
40		69					TERRACE DEPOSITS: (Continued) Orange to pale yellow, moist, moderately hard, weakly cemented, silty SANDSTONE.		
		50/5"							
50		57							
		50/4"					@ 55': Pale yellow to white, moist, moderately hard, weakly indurated, SANDSTONE lens (approximately 2 to 4 inches thick).		
60		50/5"							
		81/9"					MONTEREY FORMATION: Gray to dark gray, wet, moderately hard, weakly to moderately indurated, clayey SILTSTONE.		
							@ 67': Difficult drilling; siliceous sandstone.		
70							Auger Refusal at 67 feet. Backfilled with cement-grout upon completion. Groundwater encountered at approximately 57 feet during drilling.		
							<b>Notes:</b> Groundwater may rise to a level higher than that measured in borehole due to seasonal variations in precipitation and several other factors as discussed in the report.		
							The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.		
80									

**FIGURE A- 2**

DEPTH (feet)	Bulk Driven	SAMPLES	BLOWS/FOOT	MOISTURE (%)	DRY DENSITY (PCF)	SYMBOL	CLASSIFICATION U.S.C.S.	DATE DRILLED <u>12/23/20</u> BORING NO. <u>B-2</u> GROUND ELEVATION <u>29' ± (MSL)</u> SHEET <u>1</u> OF <u>1</u> METHOD OF DRILLING <u>8" Hollow-Stem Auger (S/G Drilling)</u> DRIVE WEIGHT <u>40 lbs. (Auto. Trip Hammer)</u> DROP <u>30"</u> SAMPLED BY <u>BAA</u> LOGGED BY <u>BAA</u> REVIEWED BY <u>MLP</u>		
								<b>DESCRIPTION/INTERPRETATION</b>		
0			5	9.8	95.4		SM	<b>FILL:</b> Brown to dark brown, moist, loose, silty SAND.  Very loose.		
10			29	9.6	91.8		SM	<b>TERRACE DEPOSITS:</b> Pale yellow, moist, medium dense, silty SAND.		
			38	11.3	94.3			Pale yellow to gray brown with iron staining, moist, soft, friable, silty SANDSTONE; trace clay; mottling.		
20			45	22.1	102.0			Increase in silt and clay content.		
30								Total Depth = 21.5 feet. Groundwater not encountered during drilling. Backfilled with cement-grout upon completion.  <b>Notes:</b> Groundwater, though not encountered at the time of drilling, may rise to a higher level due to seasonal variations in precipitation and several other factors as discussed in the report.  The ground elevation shown above is an estimation only. It is based on our interpretations of published maps and other documents reviewed for the purposes of this evaluation. It is not sufficiently accurate for preparing construction bids and design documents.		
40										

**FIGURE A- 3**



# APPENDIX B

## Laboratory Testing

# APPENDIX B

## LABORATORY TESTING

### **Classification**

Soils were visually and texturally classified in accordance with the Unified Soil Classification System (USCS) in general accordance with ASTM D 2488-00. Soil classifications are indicated on the logs of the exploratory borings in Appendix B.

### **In-Place Moisture and Density Tests**

The moisture content and dry density of relatively undisturbed samples obtained from the exploratory borings were evaluated in general accordance with ASTM D 2937-04. The test results are presented on the logs of the exploratory borings in Appendix B.

### **200 Wash**

An evaluation of the percentage of particles finer than the No. 200 sieve in selected soil samples was performed in general accordance with ASTM D 1140. The results of the tests are presented on Figure B-1.

### **Consolidation Tests**

Consolidation tests were performed on selected relatively undisturbed soil samples in general accordance with ASTM D 2435. The samples were inundated during testing to represent adverse field conditions. The percent of consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. The results of the tests are summarized on Figures B-2.

### **Direct Shear Tests**

Direct shear tests were performed on relatively undisturbed and remolded samples in general accordance with ASTM D 3080 to evaluate the shear strength characteristics of selected materials. The samples were inundated during shearing to represent adverse field conditions. The results are shown on Figures B-3.

### **Soil Corrosivity Tests**

Soil pH, and minimum resistivity tests were performed on representative samples in general accordance with CT 643. The sulfate and chloride contents of the selected samples were evaluated in general accordance with CT 417 and 422, respectively. The test results are presented on Figure B-4.



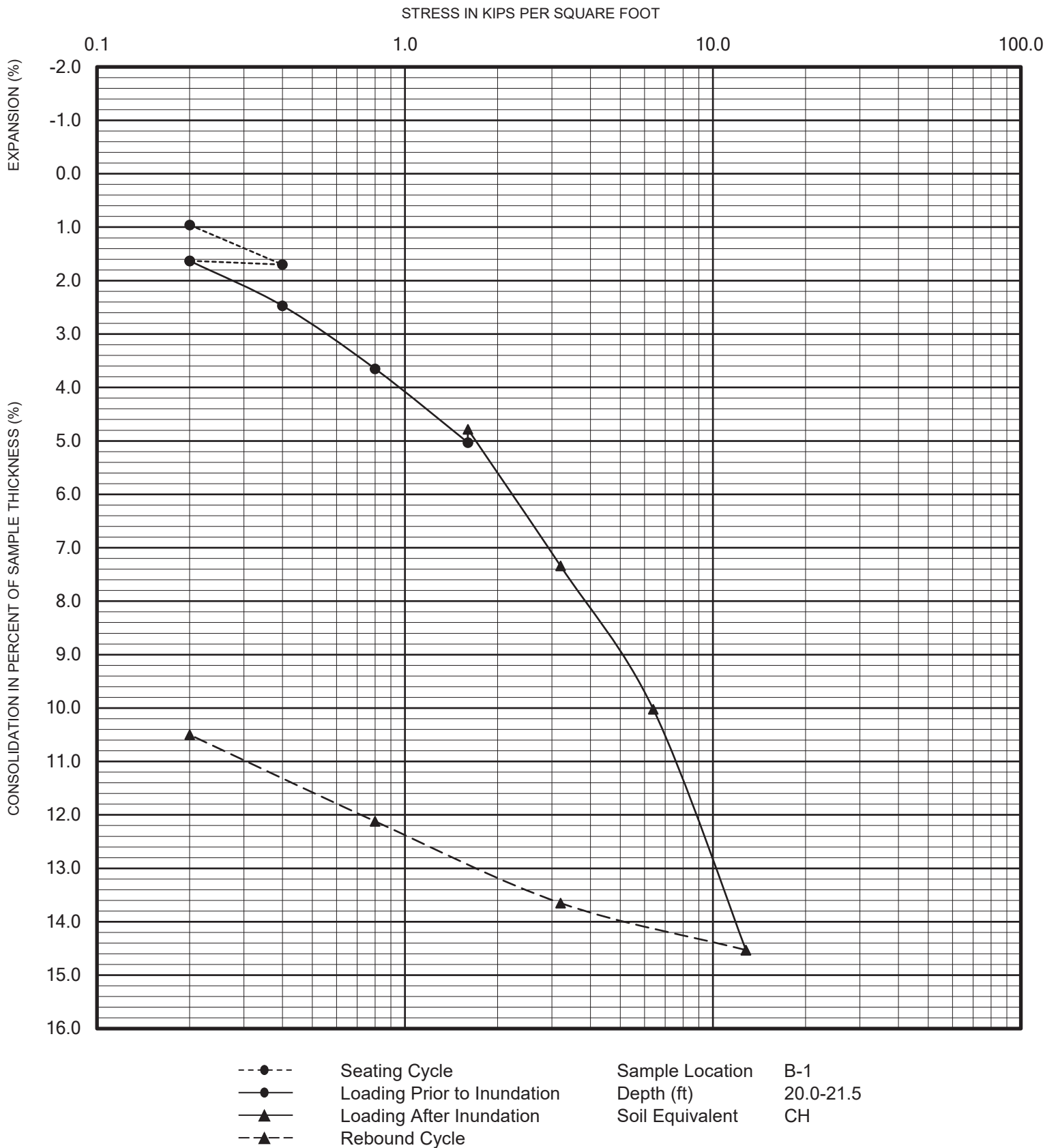
SAMPLE LOCATION	SAMPLE DEPTH (ft)	DESCRIPTION	PERCENT PASSING NO. 4	PERCENT PASSING NO. 200	USCS (TOTAL SAMPLE)
B-1	10.0-11.5	POORLY GRADED SAND WITH SILT	100	6	SP-SM
B-2	15.0-16.5	SILTY SANDSTONE	100	9	SP-SM
B-2	20.0-21.5	SILTY SANDSTONE	100	46	SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 1140

FIGURE B-1



**NO. 200 SIEVE ANALYSIS TEST RESULTS**  
 DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT  
 GOLETA, CALIFORNIA

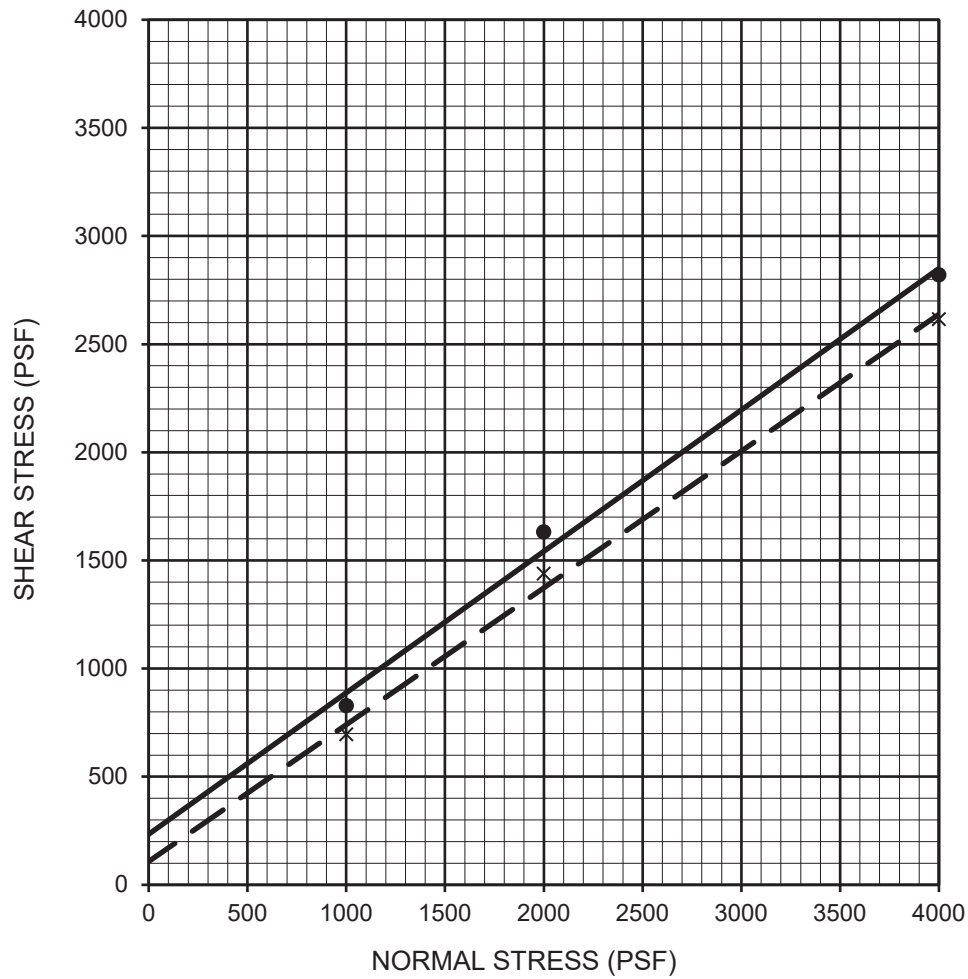


PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 2435

**FIGURE B-2**



**CONSOLIDATION TEST RESULTS**  
 DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT  
 GOLETA, CALIFORNIA



Description	Symbol	Sample Location	Depth (ft)	Shear Strength	Cohesion (psf)	Friction Angle (degrees)	Soil Type
POORLY GRADED SAND WITH SILT	—●—	B-1	10.0-11.5	Peak	234	33	SP-SM
POORLY GRADED SAND WITH SILT	- - X - -	B-1	10.0-11.5	Ultimate	108	32	SP-SM

PERFORMED IN GENERAL ACCORDANCE WITH ASTM D 3080

**FIGURE B-3**



**DIRECT SHEAR TEST RESULTS**  
 DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT  
 GOLETA, CALIFORNIA

SAMPLE LOCATION	SAMPLE DEPTH (ft)	pH <sup>1</sup>	RESISTIVITY <sup>1</sup> (ohm-cm)	SULFATE CONTENT <sup>2</sup>		CHLORIDE CONTENT <sup>3</sup> (ppm)
				(ppm)	(%)	
B-1	0.0-5.0	7.6	11,034	20	0.002	170

<sup>1</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 643

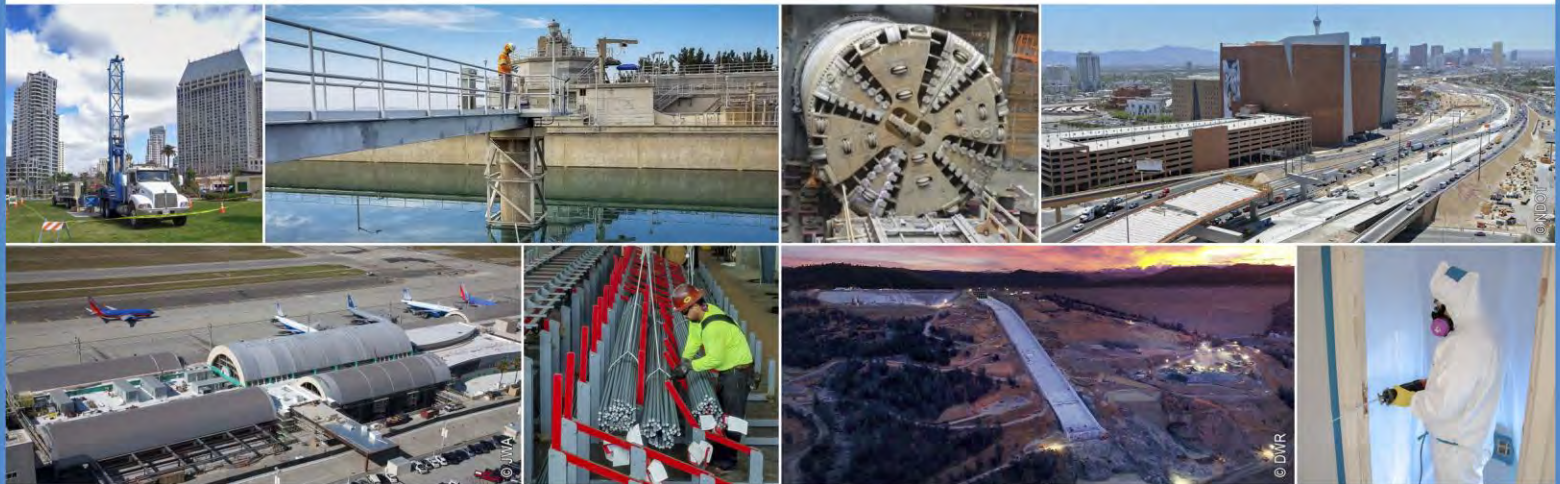
<sup>2</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 417

<sup>3</sup> PERFORMED IN GENERAL ACCORDANCE WITH CALIFORNIA TEST METHOD 422

**FIGURE B-4**



**CORROSIVITY TEST RESULTS**  
 DIGESTER 4, BIOSOLIDS AND ENERGY PHASE 1 PROJECT  
 GOLETA, CALIFORNIA



475 Goddard, Suite 200 | Irvine, California 92618 | p. 949.753.7070

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Geotechnical & Environmental Sciences Consultants

## **APPENDIX B – CALEEMOD OUTPUTS**

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**GSD Construction**

**Santa Barbara-South of Santa Ynez Range County, Annual**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	26.00	12,700.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	37
<b>Climate Zone</b>	8			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	390.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics -
- Land Use - Per Applicant
- Construction Phase - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment -
- Trips and VMT - Per Applicant
- Grading - Per Applicant
- Architectural Coating - Per Applicant

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Consumer Products - Per Applicant

Area Coating - Per Applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	6,350.00	5,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	19,050.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	6350	5000
tblAreaCoating	Area_Nonresidential_Interior	19050	0
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	440.00	360.00
tblConstructionPhase	NumDays	440.00	60.00
tblConstructionPhase	NumDays	45.00	40.00
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	20.00	40.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblGrading	AcresOfGrading	20.00	0.30
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialImported	0.00	2,500.00
tblLandUse	LandUseSquareFeet	0.00	12,700.00
tblLandUse	LotAcreage	0.00	26.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tbITripsAndVMT	HaulingTripNumber	313.00	210.00
tbITripsAndVMT	VendorTripNumber	0.00	1.00
tbITripsAndVMT	VendorTripNumber	0.00	1.00
tbITripsAndVMT	VendorTripNumber	2.00	1.00
tbITripsAndVMT	VendorTripNumber	2.00	1.00
tbITripsAndVMT	WorkerTripNumber	5.00	13.00
tbITripsAndVMT	WorkerTripNumber	5.00	13.00

**2.0 Emissions Summary**

---

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Annual

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.1 Overall Construction**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0347	0.4004	0.3060	6.1000e-004	3.8200e-003	0.0178	0.0216	9.8000e-004	0.0164	0.0173	0.0000	54.2672	54.2672	0.0153	1.1900e-003	55.0036
2022	0.1260	1.3701	0.9733	2.2300e-003	0.0113	0.0574	0.0686	2.9600e-003	0.0528	0.0557	0.0000	196.7958	196.7958	0.0607	6.7000e-004	198.5140
2023	0.1106	0.8729	0.5572	1.4900e-003	8.6500e-003	0.0353	0.0439	2.3100e-003	0.0324	0.0348	0.0000	131.2130	131.2130	0.0402	4.8000e-004	132.3609
<b>Maximum</b>	<b>0.1260</b>	<b>1.3701</b>	<b>0.9733</b>	<b>2.2300e-003</b>	<b>0.0113</b>	<b>0.0574</b>	<b>0.0686</b>	<b>2.9600e-003</b>	<b>0.0528</b>	<b>0.0557</b>	<b>0.0000</b>	<b>196.7958</b>	<b>196.7958</b>	<b>0.0607</b>	<b>1.1900e-003</b>	<b>198.5140</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.0347	0.4004	0.3060	6.1000e-004	3.8200e-003	0.0178	0.0216	9.8000e-004	0.0164	0.0173	0.0000	54.2672	54.2672	0.0153	1.1900e-003	55.0036
2022	0.1260	1.3701	0.9733	2.2300e-003	0.0113	0.0574	0.0686	2.9600e-003	0.0528	0.0557	0.0000	196.7956	196.7956	0.0607	6.7000e-004	198.5137
2023	0.1106	0.8729	0.5572	1.4900e-003	8.6500e-003	0.0353	0.0439	2.3100e-003	0.0324	0.0348	0.0000	131.2129	131.2129	0.0402	4.8000e-004	132.3608
<b>Maximum</b>	<b>0.1260</b>	<b>1.3701</b>	<b>0.9733</b>	<b>2.2300e-003</b>	<b>0.0113</b>	<b>0.0574</b>	<b>0.0686</b>	<b>2.9600e-003</b>	<b>0.0528</b>	<b>0.0557</b>	<b>0.0000</b>	<b>196.7956</b>	<b>196.7956</b>	<b>0.0607</b>	<b>1.1900e-003</b>	<b>198.5137</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	11-9-2021	2-8-2022	1.0261	1.0261
2	2-9-2022	5-8-2022	1.4408	1.4408
3	5-9-2022	8-8-2022	1.4885	1.4885
4	8-9-2022	11-8-2022	1.4892	1.4892
5	11-9-2022	2-8-2023	1.1549	1.1549
6	2-9-2023	5-8-2023	0.6765	0.6765
7	5-9-2023	8-8-2023	0.6763	0.6763
8	8-9-2023	9-30-2023	0.3479	0.3479
		Highest	1.4892	1.4892

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.9000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.9000e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	2.9000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>2.9000e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1	Site Preparation	11/9/2021	1/3/2022	5	40	
2	2	Grading	1/4/2022	2/28/2022	5	40	
3	3	Building Construction	3/1/2022	7/17/2023	5	360	

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

4	4	Building Construction	7/18/2023	10/9/2023	5	60
5	5	Paving	10/10/2023	11/6/2023	5	20
6	6	Architectural Coating	11/7/2023	12/4/2023	5	20

**Acres of Grading (Site Preparation Phase): 0.3**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 5,000; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1	Crawler Tractors	1	8.00	212	0.43
1	Other Construction Equipment	2	8.00	172	0.42
1	Rough Terrain Forklifts	1	8.00	100	0.40
1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2	Cranes	1	8.00	231	0.29
2	Excavators	1	8.00	158	0.38
2	Other Construction Equipment	2	8.00	172	0.42
3	Cranes	2	8.00	231	0.29
3	Rough Terrain Forklifts	1	8.00	100	0.40
4	Cranes	2	8.00	231	0.29

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
1	5	13.00	1.00	210.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
2	4	10.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
3	3	13.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT

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4	2	13.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
5			0.00	0.00	8.30	6.40				
6			0.00	0.00	8.30	6.40				

**3.1 Mitigation Measures Construction**

**3.2 1 - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.0000e-004	0.0000	4.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0332	0.3751	0.2944	5.2000e-004		0.0174	0.0174		0.0161	0.0161	0.0000	45.8542	45.8542	0.0148	0.0000	46.2249
<b>Total</b>	<b>0.0332</b>	<b>0.3751</b>	<b>0.2944</b>	<b>5.2000e-004</b>	<b>4.0000e-004</b>	<b>0.0174</b>	<b>0.0178</b>	<b>5.0000e-005</b>	<b>0.0161</b>	<b>0.0161</b>	<b>0.0000</b>	<b>45.8542</b>	<b>45.8542</b>	<b>0.0148</b>	<b>0.0000</b>	<b>46.2249</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2021**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.2000e-004	0.0233	5.2300e-003	7.0000e-005	1.7500e-003	2.9000e-004	2.0300e-003	4.8000e-004	2.7000e-004	7.5000e-004	0.0000	6.7707	6.7707	4.1000e-004	1.0800e-003	7.1036
Vendor	6.0000e-005	1.3400e-003	4.2000e-004	0.0000	1.1000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.3757	0.3757	2.0000e-005	6.0000e-005	0.3925
Worker	7.5000e-004	6.0000e-004	5.8600e-003	1.0000e-005	1.5700e-003	1.0000e-005	1.5700e-003	4.2000e-004	1.0000e-005	4.2000e-004	0.0000	1.2667	1.2667	6.0000e-005	5.0000e-005	1.2826
<b>Total</b>	<b>1.5300e-003</b>	<b>0.0253</b>	<b>0.0115</b>	<b>8.0000e-005</b>	<b>3.4300e-003</b>	<b>3.2000e-004</b>	<b>3.7300e-003</b>	<b>9.3000e-004</b>	<b>3.0000e-004</b>	<b>1.2200e-003</b>	<b>0.0000</b>	<b>8.4131</b>	<b>8.4131</b>	<b>4.9000e-004</b>	<b>1.1900e-003</b>	<b>8.7787</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.0000e-004	0.0000	4.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0332	0.3751	0.2944	5.2000e-004		0.0174	0.0174		0.0161	0.0161	0.0000	45.8541	45.8541	0.0148	0.0000	46.2249
<b>Total</b>	<b>0.0332</b>	<b>0.3751</b>	<b>0.2944</b>	<b>5.2000e-004</b>	<b>4.0000e-004</b>	<b>0.0174</b>	<b>0.0178</b>	<b>5.0000e-005</b>	<b>0.0161</b>	<b>0.0161</b>	<b>0.0000</b>	<b>45.8541</b>	<b>45.8541</b>	<b>0.0148</b>	<b>0.0000</b>	<b>46.2249</b>



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2021**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.2000e-004	0.0233	5.2300e-003	7.0000e-005	1.7500e-003	2.9000e-004	2.0300e-003	4.8000e-004	2.7000e-004	7.5000e-004	0.0000	6.7707	6.7707	4.1000e-004	1.0800e-003	7.1036
Vendor	6.0000e-005	1.3400e-003	4.2000e-004	0.0000	1.1000e-004	2.0000e-005	1.3000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	0.3757	0.3757	2.0000e-005	6.0000e-005	0.3925
Worker	7.5000e-004	6.0000e-004	5.8600e-003	1.0000e-005	1.5700e-003	1.0000e-005	1.5700e-003	4.2000e-004	1.0000e-005	4.2000e-004	0.0000	1.2667	1.2667	6.0000e-005	5.0000e-005	1.2826
<b>Total</b>	<b>1.5300e-003</b>	<b>0.0253</b>	<b>0.0115</b>	<b>8.0000e-005</b>	<b>3.4300e-003</b>	<b>3.2000e-004</b>	<b>3.7300e-003</b>	<b>9.3000e-004</b>	<b>3.0000e-004</b>	<b>1.2200e-003</b>	<b>0.0000</b>	<b>8.4131</b>	<b>8.4131</b>	<b>4.9000e-004</b>	<b>1.1900e-003</b>	<b>8.7787</b>

**3.2 1 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.0000e-004	0.0000	4.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6000e-004	8.4000e-003	7.4400e-003	1.0000e-005		3.8000e-004	3.8000e-004		3.5000e-004	3.5000e-004	0.0000	1.1751	1.1751	3.8000e-004	0.0000	1.1846
<b>Total</b>	<b>7.6000e-004</b>	<b>8.4000e-003</b>	<b>7.4400e-003</b>	<b>1.0000e-005</b>	<b>4.0000e-004</b>	<b>3.8000e-004</b>	<b>7.8000e-004</b>	<b>5.0000e-005</b>	<b>3.5000e-004</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>1.1751</b>	<b>1.1751</b>	<b>3.8000e-004</b>	<b>0.0000</b>	<b>1.1846</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.2000e-004	1.2000e-004	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1694	0.1694	1.0000e-005	3.0000e-005	0.1778
Vendor	0.0000	3.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.4000e-003	9.4000e-003	0.0000	0.0000	9.8200e-003
Worker	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0315	0.0315	0.0000	0.0000	0.0319
<b>Total</b>	<b>3.0000e-005</b>	<b>5.6000e-004</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.2103</b>	<b>0.2103</b>	<b>1.0000e-005</b>	<b>3.0000e-005</b>	<b>0.2195</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.0000e-004	0.0000	4.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.6000e-004	8.4000e-003	7.4400e-003	1.0000e-005		3.8000e-004	3.8000e-004		3.5000e-004	3.5000e-004	0.0000	1.1751	1.1751	3.8000e-004	0.0000	1.1846
<b>Total</b>	<b>7.6000e-004</b>	<b>8.4000e-003</b>	<b>7.4400e-003</b>	<b>1.0000e-005</b>	<b>4.0000e-004</b>	<b>3.8000e-004</b>	<b>7.8000e-004</b>	<b>5.0000e-005</b>	<b>3.5000e-004</b>	<b>4.0000e-004</b>	<b>0.0000</b>	<b>1.1751</b>	<b>1.1751</b>	<b>3.8000e-004</b>	<b>0.0000</b>	<b>1.1846</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.0000e-005	5.2000e-004	1.2000e-004	0.0000	4.0000e-005	0.0000	5.0000e-005	1.0000e-005	0.0000	2.0000e-005	0.0000	0.1694	0.1694	1.0000e-005	3.0000e-005	0.1778
Vendor	0.0000	3.0000e-005	1.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	9.4000e-003	9.4000e-003	0.0000	0.0000	9.8200e-003
Worker	2.0000e-005	1.0000e-005	1.4000e-004	0.0000	4.0000e-005	0.0000	4.0000e-005	1.0000e-005	0.0000	1.0000e-005	0.0000	0.0315	0.0315	0.0000	0.0000	0.0319
<b>Total</b>	<b>3.0000e-005</b>	<b>5.6000e-004</b>	<b>2.7000e-004</b>	<b>0.0000</b>	<b>8.0000e-005</b>	<b>0.0000</b>	<b>9.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>3.0000e-005</b>	<b>0.0000</b>	<b>0.2103</b>	<b>0.2103</b>	<b>1.0000e-005</b>	<b>3.0000e-005</b>	<b>0.2195</b>

**3.3 2 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.2718	0.2638	4.7000e-004		0.0132	0.0132		0.0121	0.0121	0.0000	40.9233	40.9233	0.0132	0.0000	41.2541
<b>Total</b>	<b>0.0266</b>	<b>0.2718</b>	<b>0.2638</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>0.0132</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.0121</b>	<b>0.0121</b>	<b>0.0000</b>	<b>40.9233</b>	<b>40.9233</b>	<b>0.0132</b>	<b>0.0000</b>	<b>41.2541</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2 - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.1600e-003	3.7000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3759	0.3759	2.0000e-005	6.0000e-005	0.3927
Worker	5.5000e-004	4.2000e-004	4.2400e-003	1.0000e-005	1.2400e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.3000e-004	0.0000	0.9701	0.9701	4.0000e-005	4.0000e-005	0.9816
<b>Total</b>	<b>5.9000e-004</b>	<b>1.5800e-003</b>	<b>4.6100e-003</b>	<b>1.0000e-005</b>	<b>1.3600e-003</b>	<b>2.0000e-005</b>	<b>1.3700e-003</b>	<b>3.6000e-004</b>	<b>2.0000e-005</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>1.3459</b>	<b>1.3459</b>	<b>6.0000e-005</b>	<b>1.0000e-004</b>	<b>1.3743</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0266	0.2718	0.2638	4.7000e-004		0.0132	0.0132		0.0121	0.0121	0.0000	40.9232	40.9232	0.0132	0.0000	41.2541
<b>Total</b>	<b>0.0266</b>	<b>0.2718</b>	<b>0.2638</b>	<b>4.7000e-004</b>	<b>0.0000</b>	<b>0.0132</b>	<b>0.0132</b>	<b>0.0000</b>	<b>0.0121</b>	<b>0.0121</b>	<b>0.0000</b>	<b>40.9232</b>	<b>40.9232</b>	<b>0.0132</b>	<b>0.0000</b>	<b>41.2541</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2 - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.1600e-003	3.7000e-004	0.0000	1.2000e-004	1.0000e-005	1.3000e-004	3.0000e-005	1.0000e-005	4.0000e-005	0.0000	0.3759	0.3759	2.0000e-005	6.0000e-005	0.3927
Worker	5.5000e-004	4.2000e-004	4.2400e-003	1.0000e-005	1.2400e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.3000e-004	0.0000	0.9701	0.9701	4.0000e-005	4.0000e-005	0.9816
<b>Total</b>	<b>5.9000e-004</b>	<b>1.5800e-003</b>	<b>4.6100e-003</b>	<b>1.0000e-005</b>	<b>1.3600e-003</b>	<b>2.0000e-005</b>	<b>1.3700e-003</b>	<b>3.6000e-004</b>	<b>2.0000e-005</b>	<b>3.7000e-004</b>	<b>0.0000</b>	<b>1.3459</b>	<b>1.3459</b>	<b>6.0000e-005</b>	<b>1.0000e-004</b>	<b>1.3743</b>

**3.4 3 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0939	1.0785	0.6650	1.6400e-003		0.0437	0.0437		0.0402	0.0402	0.0000	144.1788	144.1788	0.0466	0.0000	145.3446
<b>Total</b>	<b>0.0939</b>	<b>1.0785</b>	<b>0.6650</b>	<b>1.6400e-003</b>		<b>0.0437</b>	<b>0.0437</b>		<b>0.0402</b>	<b>0.0402</b>	<b>0.0000</b>	<b>144.1788</b>	<b>144.1788</b>	<b>0.0466</b>	<b>0.0000</b>	<b>145.3446</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2022**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	6.3600e-003	2.0300e-003	2.0000e-005	6.4000e-004	6.0000e-005	7.0000e-004	1.8000e-004	6.0000e-005	2.4000e-004	0.0000	2.0578	2.0578	8.0000e-005	3.0000e-004	2.1501
Worker	3.9400e-003	2.9600e-003	0.0302	8.0000e-005	8.7900e-003	5.0000e-005	8.8400e-003	2.3400e-003	4.0000e-005	2.3800e-003	0.0000	6.9046	6.9046	2.9000e-004	2.5000e-004	6.9867
<b>Total</b>	<b>4.1700e-003</b>	<b>9.3200e-003</b>	<b>0.0322</b>	<b>1.0000e-004</b>	<b>9.4300e-003</b>	<b>1.1000e-004</b>	<b>9.5400e-003</b>	<b>2.5200e-003</b>	<b>1.0000e-004</b>	<b>2.6200e-003</b>	<b>0.0000</b>	<b>8.9624</b>	<b>8.9624</b>	<b>3.7000e-004</b>	<b>5.5000e-004</b>	<b>9.1368</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0939	1.0785	0.6650	1.6400e-003		0.0437	0.0437		0.0402	0.0402	0.0000	144.1787	144.1787	0.0466	0.0000	145.3444
<b>Total</b>	<b>0.0939</b>	<b>1.0785</b>	<b>0.6650</b>	<b>1.6400e-003</b>		<b>0.0437</b>	<b>0.0437</b>		<b>0.0402</b>	<b>0.0402</b>	<b>0.0000</b>	<b>144.1787</b>	<b>144.1787</b>	<b>0.0466</b>	<b>0.0000</b>	<b>145.3444</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2022**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.3000e-004	6.3600e-003	2.0300e-003	2.0000e-005	6.4000e-004	6.0000e-005	7.0000e-004	1.8000e-004	6.0000e-005	2.4000e-004	0.0000	2.0578	2.0578	8.0000e-005	3.0000e-004	2.1501
Worker	3.9400e-003	2.9600e-003	0.0302	8.0000e-005	8.7900e-003	5.0000e-005	8.8400e-003	2.3400e-003	4.0000e-005	2.3800e-003	0.0000	6.9046	6.9046	2.9000e-004	2.5000e-004	6.9867
<b>Total</b>	<b>4.1700e-003</b>	<b>9.3200e-003</b>	<b>0.0322</b>	<b>1.0000e-004</b>	<b>9.4300e-003</b>	<b>1.1000e-004</b>	<b>9.5400e-003</b>	<b>2.5200e-003</b>	<b>1.0000e-004</b>	<b>2.6200e-003</b>	<b>0.0000</b>	<b>8.9624</b>	<b>8.9624</b>	<b>3.7000e-004</b>	<b>5.5000e-004</b>	<b>9.1368</b>

**3.4 3 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0570	0.6367	0.4199	1.0600e-003		0.0256	0.0256		0.0236	0.0236	0.0000	92.8292	92.8292	0.0300	0.0000	93.5798
<b>Total</b>	<b>0.0570</b>	<b>0.6367</b>	<b>0.4199</b>	<b>1.0600e-003</b>		<b>0.0256</b>	<b>0.0256</b>		<b>0.0236</b>	<b>0.0236</b>	<b>0.0000</b>	<b>92.8292</b>	<b>92.8292</b>	<b>0.0300</b>	<b>0.0000</b>	<b>93.5798</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2023**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-005	3.4200e-003	1.1500e-003	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.2787	1.2787	5.0000e-005	1.9000e-004	1.3361
Worker	2.3600e-003	1.6900e-003	0.0179	5.0000e-005	5.6600e-003	3.0000e-005	5.6900e-003	1.5000e-003	3.0000e-005	1.5300e-003	0.0000	4.3099	4.3099	1.7000e-004	1.5000e-004	4.3587
<b>Total</b>	<b>2.4500e-003</b>	<b>5.1100e-003</b>	<b>0.0191</b>	<b>6.0000e-005</b>	<b>6.0700e-003</b>	<b>5.0000e-005</b>	<b>6.1200e-003</b>	<b>1.6200e-003</b>	<b>5.0000e-005</b>	<b>1.6700e-003</b>	<b>0.0000</b>	<b>5.5886</b>	<b>5.5886</b>	<b>2.2000e-004</b>	<b>3.4000e-004</b>	<b>5.6948</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0570	0.6366	0.4199	1.0600e-003		0.0256	0.0256		0.0236	0.0236	0.0000	92.8291	92.8291	0.0300	0.0000	93.5796
<b>Total</b>	<b>0.0570</b>	<b>0.6366</b>	<b>0.4199</b>	<b>1.0600e-003</b>		<b>0.0256</b>	<b>0.0256</b>		<b>0.0236</b>	<b>0.0236</b>	<b>0.0000</b>	<b>92.8291</b>	<b>92.8291</b>	<b>0.0300</b>	<b>0.0000</b>	<b>93.5796</b>



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**3.4 3 - 2023**

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	9.0000e-005	3.4200e-003	1.1500e-003	1.0000e-005	4.1000e-004	2.0000e-005	4.3000e-004	1.2000e-004	2.0000e-005	1.4000e-004	0.0000	1.2787	1.2787	5.0000e-005	1.9000e-004	1.3361
Worker	2.3600e-003	1.6900e-003	0.0179	5.0000e-005	5.6600e-003	3.0000e-005	5.6900e-003	1.5000e-003	3.0000e-005	1.5300e-003	0.0000	4.3099	4.3099	1.7000e-004	1.5000e-004	4.3587
<b>Total</b>	<b>2.4500e-003</b>	<b>5.1100e-003</b>	<b>0.0191</b>	<b>6.0000e-005</b>	<b>6.0700e-003</b>	<b>5.0000e-005</b>	<b>6.1200e-003</b>	<b>1.6200e-003</b>	<b>5.0000e-005</b>	<b>1.6700e-003</b>	<b>0.0000</b>	<b>5.5886</b>	<b>5.5886</b>	<b>2.2000e-004</b>	<b>3.4000e-004</b>	<b>5.6948</b>

**3.5 4 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0211	0.2289	0.1101	3.5000e-004		9.5600e-003	9.5600e-003		8.8000e-003	8.8000e-003	0.0000	30.4171	30.4171	9.8400e-003	0.0000	30.6631
<b>Total</b>	<b>0.0211</b>	<b>0.2289</b>	<b>0.1101</b>	<b>3.5000e-004</b>		<b>9.5600e-003</b>	<b>9.5600e-003</b>		<b>8.8000e-003</b>	<b>8.8000e-003</b>	<b>0.0000</b>	<b>30.4171</b>	<b>30.4171</b>	<b>9.8400e-003</b>	<b>0.0000</b>	<b>30.6631</b>

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**3.5 4 - 2023**

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.4500e-003	4.9000e-004	1.0000e-005	1.7000e-004	1.0000e-005	1.8000e-004	5.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.5441	0.5441	2.0000e-005	8.0000e-005	0.5685
Worker	1.0000e-003	7.2000e-004	7.6200e-003	2.0000e-005	2.4100e-003	1.0000e-005	2.4200e-003	6.4000e-004	1.0000e-005	6.5000e-004	0.0000	1.8340	1.8340	7.0000e-005	6.0000e-005	1.8548
<b>Total</b>	<b>1.0400e-003</b>	<b>2.1700e-003</b>	<b>8.1100e-003</b>	<b>3.0000e-005</b>	<b>2.5800e-003</b>	<b>2.0000e-005</b>	<b>2.6000e-003</b>	<b>6.9000e-004</b>	<b>2.0000e-005</b>	<b>7.1000e-004</b>	<b>0.0000</b>	<b>2.3781</b>	<b>2.3781</b>	<b>9.0000e-005</b>	<b>1.4000e-004</b>	<b>2.4233</b>

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0211	0.2289	0.1101	3.5000e-004		9.5600e-003	9.5600e-003		8.8000e-003	8.8000e-003	0.0000	30.4171	30.4171	9.8400e-003	0.0000	30.6630
<b>Total</b>	<b>0.0211</b>	<b>0.2289</b>	<b>0.1101</b>	<b>3.5000e-004</b>		<b>9.5600e-003</b>	<b>9.5600e-003</b>		<b>8.8000e-003</b>	<b>8.8000e-003</b>	<b>0.0000</b>	<b>30.4171</b>	<b>30.4171</b>	<b>9.8400e-003</b>	<b>0.0000</b>	<b>30.6630</b>











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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272



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**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000



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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.3 Energy by Land Use - Electricity**

**Unmitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**Mitigated**

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	2.9000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	2.9000e-003	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

**6.2 Area by SubCategory**

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>2.9000e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.9000e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
<b>Total</b>	<b>2.9000e-003</b>	<b>0.0000</b>	<b>1.0000e-005</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>	<b>2.0000e-005</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.0000e-005</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

**7.2 Water by Land Use**

**Unmitigated**

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**7.2 Water by Land Use**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.2 Waste by Land Use**

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**GSD Construction**

**Santa Barbara-South of Santa Ynez Range County, Summer**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	26.00	12,700.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	37
<b>Climate Zone</b>	8			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	390.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics -
- Land Use - Per Applicant
- Construction Phase - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment -
- Trips and VMT - Per Applicant
- Grading - Per Applicant
- Architectural Coating - Per Applicant

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Consumer Products - Per Applicant

Area Coating - Per Applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	6,350.00	5,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	19,050.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	6350	5000
tblAreaCoating	Area_Nonresidential_Interior	19050	0
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	440.00	360.00
tblConstructionPhase	NumDays	440.00	60.00
tblConstructionPhase	NumDays	45.00	40.00
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	20.00	40.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblGrading	AcresOfGrading	20.00	0.30
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialImported	0.00	2,500.00
tblLandUse	LandUseSquareFeet	0.00	12,700.00
tblLandUse	LotAcreage	0.00	26.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

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**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tbITripsAndVMT	HaulingTripNumber	313.00	210.00
tbITripsAndVMT	VendorTripNumber	0.00	1.00
tbITripsAndVMT	VendorTripNumber	0.00	1.00
tbITripsAndVMT	VendorTripNumber	2.00	1.00
tbITripsAndVMT	VendorTripNumber	2.00	1.00
tbITripsAndVMT	WorkerTripNumber	5.00	13.00
tbITripsAndVMT	WorkerTripNumber	5.00	13.00

**2.0 Emissions Summary**

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GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.1 Overall Construction (Maximum Daily Emission)**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.7799	20.4861	15.6860	0.0311	0.1992	0.9107	1.1099	0.0512	0.8384	0.8895	0.0000	3,069.0576	3,069.0576	0.8656	0.0669	3,110.6192
2022	1.5818	17.8722	15.4078	0.0310	0.1992	0.7762	0.9754	0.0512	0.7144	0.7656	0.0000	3,055.6923	3,055.6923	0.8656	0.0652	3,096.7483
2023	2.8969	9.0987	6.2229	0.0159	0.0880	0.3643	0.4523	0.0235	0.3352	0.3587	0.0000	1,540.1430	1,540.1430	0.4727	5.1200e-003	1,553.4857
<b>Maximum</b>	<b>2.8969</b>	<b>20.4861</b>	<b>15.6860</b>	<b>0.0311</b>	<b>0.1992</b>	<b>0.9107</b>	<b>1.1099</b>	<b>0.0512</b>	<b>0.8384</b>	<b>0.8895</b>	<b>0.0000</b>	<b>3,069.0576</b>	<b>3,069.0576</b>	<b>0.8656</b>	<b>0.0669</b>	<b>3,110.6192</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.7799	20.4861	15.6860	0.0311	0.1992	0.9107	1.1099	0.0512	0.8384	0.8895	0.0000	3,069.0576	3,069.0576	0.8656	0.0669	3,110.6192
2022	1.5818	17.8722	15.4078	0.0310	0.1992	0.7762	0.9754	0.0512	0.7144	0.7656	0.0000	3,055.6923	3,055.6923	0.8656	0.0652	3,096.7483
2023	2.8969	9.0987	6.2229	0.0159	0.0880	0.3643	0.4523	0.0235	0.3352	0.3587	0.0000	1,540.1430	1,540.1430	0.4727	5.1200e-003	1,553.4857
<b>Maximum</b>	<b>2.8969</b>	<b>20.4861</b>	<b>15.6860</b>	<b>0.0311</b>	<b>0.1992</b>	<b>0.9107</b>	<b>1.1099</b>	<b>0.0512</b>	<b>0.8384</b>	<b>0.8895</b>	<b>0.0000</b>	<b>3,069.0576</b>	<b>3,069.0576</b>	<b>0.8656</b>	<b>0.0669</b>	<b>3,110.6192</b>



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0159	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0159</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.3000e-004</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0159	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0159</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.3000e-004</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1	Site Preparation	11/9/2021	1/3/2022	5	40	
2	2	Grading	1/4/2022	2/28/2022	5	40	
3	3	Building Construction	3/1/2022	7/17/2023	5	360	
4	4	Building Construction	7/18/2023	10/9/2023	5	60	
5	5	Paving	10/10/2023	11/6/2023	5	20	
6	6	Architectural Coating	11/7/2023	12/4/2023	5	20	

**Acres of Grading (Site Preparation Phase): 0.3**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 5,000; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1	Crawler Tractors	1	8.00	212	0.43
1	Other Construction Equipment	2	8.00	172	0.42
1	Rough Terrain Forklifts	1	8.00	100	0.40
1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2	Cranes	1	8.00	231	0.29



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

2	Excavators	1	8.00	158	0.38
2	Other Construction Equipment	2	8.00	172	0.42
3	Cranes	2	8.00	231	0.29
3	Rough Terrain Forklifts	1	8.00	100	0.40
4	Cranes	2	8.00	231	0.29

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	
1		5	13.00	1.00	210.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
2		4	10.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
3		3	13.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
4		2	13.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
5				0.00	0.00	8.30	6.40				
6				0.00	0.00	8.30	6.40				

**3.1 Mitigation Measures Construction**

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0198	0.0000	0.0198	2.6500e-003	0.0000	2.6500e-003			0.0000			0.0000
Off-Road	1.7011	19.2380	15.0997	0.0268		0.8946	0.8946		0.8230	0.8230		2,592.0803	2,592.0803	0.8383		2,613.0386
<b>Total</b>	<b>1.7011</b>	<b>19.2380</b>	<b>15.0997</b>	<b>0.0268</b>	<b>0.0198</b>	<b>0.8946</b>	<b>0.9144</b>	<b>2.6500e-003</b>	<b>0.8230</b>	<b>0.8257</b>		<b>2,592.0803</b>	<b>2,592.0803</b>	<b>0.8383</b>		<b>2,613.0386</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0373	1.1542	0.2674	3.4100e-003	0.0914	0.0146	0.1061	0.0250	0.0140	0.0390		382.7151	382.7151	0.0234	0.0612	401.5301
Vendor	3.2600e-003	0.0665	0.0214	1.9000e-004	5.9300e-003	9.9000e-004	6.9200e-003	1.7100e-003	9.5000e-004	2.6500e-003		21.2364	21.2364	8.5000e-004	3.1200e-003	22.1869
Worker	0.0382	0.0275	0.2975	7.2000e-004	0.0821	4.5000e-004	0.0826	0.0218	4.2000e-004	0.0222		73.0257	73.0257	3.0300e-003	2.5600e-003	73.8636
<b>Total</b>	<b>0.0788</b>	<b>1.2481</b>	<b>0.5863</b>	<b>4.3200e-003</b>	<b>0.1795</b>	<b>0.0161</b>	<b>0.1955</b>	<b>0.0485</b>	<b>0.0154</b>	<b>0.0639</b>		<b>476.9773</b>	<b>476.9773</b>	<b>0.0273</b>	<b>0.0669</b>	<b>497.5806</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2021**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0198	0.0000	0.0198	2.6500e-003	0.0000	2.6500e-003			0.0000			0.0000
Off-Road	1.7011	19.2380	15.0997	0.0268		0.8946	0.8946		0.8230	0.8230	0.0000	2,592.0803	2,592.0803	0.8383		2,613.0386
<b>Total</b>	<b>1.7011</b>	<b>19.2380</b>	<b>15.0997</b>	<b>0.0268</b>	<b>0.0198</b>	<b>0.8946</b>	<b>0.9144</b>	<b>2.6500e-003</b>	<b>0.8230</b>	<b>0.8257</b>	<b>0.0000</b>	<b>2,592.0803</b>	<b>2,592.0803</b>	<b>0.8383</b>		<b>2,613.0386</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0373	1.1542	0.2674	3.4100e-003	0.0914	0.0146	0.1061	0.0250	0.0140	0.0390		382.7151	382.7151	0.0234	0.0612	401.5301
Vendor	3.2600e-003	0.0665	0.0214	1.9000e-004	5.9300e-003	9.9000e-004	6.9200e-003	1.7100e-003	9.5000e-004	2.6500e-003		21.2364	21.2364	8.5000e-004	3.1200e-003	22.1869
Worker	0.0382	0.0275	0.2975	7.2000e-004	0.0821	4.5000e-004	0.0826	0.0218	4.2000e-004	0.0222		73.0257	73.0257	3.0300e-003	2.5600e-003	73.8636
<b>Total</b>	<b>0.0788</b>	<b>1.2481</b>	<b>0.5863</b>	<b>4.3200e-003</b>	<b>0.1795</b>	<b>0.0161</b>	<b>0.1955</b>	<b>0.0485</b>	<b>0.0154</b>	<b>0.0639</b>		<b>476.9773</b>	<b>476.9773</b>	<b>0.0273</b>	<b>0.0669</b>	<b>497.5806</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0198	0.0000	0.0198	2.6500e-003	0.0000	2.6500e-003			0.0000			0.0000
Off-Road	1.5205	16.7940	14.8817	0.0268		0.7666	0.7666		0.7053	0.7053		2,590.6883	2,590.6883	0.8379		2,611.6353
<b>Total</b>	<b>1.5205</b>	<b>16.7940</b>	<b>14.8817</b>	<b>0.0268</b>	<b>0.0198</b>	<b>0.7666</b>	<b>0.7863</b>	<b>2.6500e-003</b>	<b>0.7053</b>	<b>0.7079</b>		<b>2,590.6883</b>	<b>2,590.6883</b>	<b>0.8379</b>		<b>2,611.6353</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0237	0.9978	0.2354	3.3100e-003	0.0914	8.6500e-003	0.1001	0.0250	8.2700e-003	0.0333		373.4093	373.4093	0.0241	0.0598	391.8198
Vendor	2.1400e-003	0.0561	0.0183	1.9000e-004	5.9300e-003	5.5000e-004	6.4700e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7118	20.7118	8.4000e-004	3.0400e-003	21.6401
Worker	0.0355	0.0243	0.2725	7.0000e-004	0.0821	4.3000e-004	0.0825	0.0218	3.9000e-004	0.0222		70.8829	70.8829	2.7300e-003	2.3600e-003	71.6531
<b>Total</b>	<b>0.0613</b>	<b>1.0781</b>	<b>0.5261</b>	<b>4.2000e-003</b>	<b>0.1795</b>	<b>9.6300e-003</b>	<b>0.1891</b>	<b>0.0485</b>	<b>9.1800e-003</b>	<b>0.0577</b>		<b>465.0041</b>	<b>465.0041</b>	<b>0.0277</b>	<b>0.0652</b>	<b>485.1130</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2022**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0198	0.0000	0.0198	2.6500e-003	0.0000	2.6500e-003			0.0000			0.0000
Off-Road	1.5205	16.7940	14.8817	0.0268		0.7666	0.7666		0.7053	0.7053	0.0000	2,590.688 3	2,590.688 3	0.8379		2,611.635 3
<b>Total</b>	<b>1.5205</b>	<b>16.7940</b>	<b>14.8817</b>	<b>0.0268</b>	<b>0.0198</b>	<b>0.7666</b>	<b>0.7863</b>	<b>2.6500e-003</b>	<b>0.7053</b>	<b>0.7079</b>	<b>0.0000</b>	<b>2,590.688 3</b>	<b>2,590.688 3</b>	<b>0.8379</b>		<b>2,611.635 3</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0237	0.9978	0.2354	3.3100e-003	0.0914	8.6500e-003	0.1001	0.0250	8.2700e-003	0.0333		373.4093	373.4093	0.0241	0.0598	391.8198
Vendor	2.1400e-003	0.0561	0.0183	1.9000e-004	5.9300e-003	5.5000e-004	6.4700e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7118	20.7118	8.4000e-004	3.0400e-003	21.6401
Worker	0.0355	0.0243	0.2725	7.0000e-004	0.0821	4.3000e-004	0.0825	0.0218	3.9000e-004	0.0222		70.8829	70.8829	2.7300e-003	2.3600e-003	71.6531
<b>Total</b>	<b>0.0613</b>	<b>1.0781</b>	<b>0.5261</b>	<b>4.2000e-003</b>	<b>0.1795</b>	<b>9.6300e-003</b>	<b>0.1891</b>	<b>0.0485</b>	<b>9.1800e-003</b>	<b>0.0577</b>		<b>465.0041</b>	<b>465.0041</b>	<b>0.0277</b>	<b>0.0652</b>	<b>485.1130</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3274	13.5915	13.1880	0.0233		0.6578	0.6578		0.6052	0.6052		2,255.508 1	2,255.508 1	0.7295		2,273.745 1
<b>Total</b>	<b>1.3274</b>	<b>13.5915</b>	<b>13.1880</b>	<b>0.0233</b>	<b>0.0000</b>	<b>0.6578</b>	<b>0.6578</b>	<b>0.0000</b>	<b>0.6052</b>	<b>0.6052</b>		<b>2,255.508 1</b>	<b>2,255.508 1</b>	<b>0.7295</b>		<b>2,273.745 1</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.0561	0.0183	1.9000e-004	5.9300e-003	5.5000e-004	6.4700e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7118	20.7118	8.4000e-004	3.0400e-003	21.6401
Worker	0.0273	0.0187	0.2096	5.4000e-004	0.0632	3.3000e-004	0.0635	0.0168	3.0000e-004	0.0171		54.5253	54.5253	2.1000e-003	1.8100e-003	55.1178
<b>Total</b>	<b>0.0294</b>	<b>0.0748</b>	<b>0.2279</b>	<b>7.3000e-004</b>	<b>0.0691</b>	<b>8.8000e-004</b>	<b>0.0700</b>	<b>0.0185</b>	<b>8.2000e-004</b>	<b>0.0193</b>		<b>75.2372</b>	<b>75.2372</b>	<b>2.9400e-003</b>	<b>4.8500e-003</b>	<b>76.7578</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2 - 2022**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3274	13.5915	13.1880	0.0233		0.6578	0.6578		0.6052	0.6052	0.0000	2,255.508 1	2,255.508 1	0.7295		2,273.745 1
<b>Total</b>	<b>1.3274</b>	<b>13.5915</b>	<b>13.1880</b>	<b>0.0233</b>	<b>0.0000</b>	<b>0.6578</b>	<b>0.6578</b>	<b>0.0000</b>	<b>0.6052</b>	<b>0.6052</b>	<b>0.0000</b>	<b>2,255.508 1</b>	<b>2,255.508 1</b>	<b>0.7295</b>		<b>2,273.745 1</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.0561	0.0183	1.9000e-004	5.9300e-003	5.5000e-004	6.4700e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7118	20.7118	8.4000e-004	3.0400e-003	21.6401
Worker	0.0273	0.0187	0.2096	5.4000e-004	0.0632	3.3000e-004	0.0635	0.0168	3.0000e-004	0.0171		54.5253	54.5253	2.1000e-003	1.8100e-003	55.1178
<b>Total</b>	<b>0.0294</b>	<b>0.0748</b>	<b>0.2279</b>	<b>7.3000e-004</b>	<b>0.0691</b>	<b>8.8000e-004</b>	<b>0.0700</b>	<b>0.0185</b>	<b>8.2000e-004</b>	<b>0.0193</b>		<b>75.2372</b>	<b>75.2372</b>	<b>2.9400e-003</b>	<b>4.8500e-003</b>	<b>76.7578</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8578	9.8489	6.0731	0.0150		0.3991	0.3991		0.3672	0.3672		1,451.415 2	1,451.415 2	0.4694		1,463.150 6
<b>Total</b>	<b>0.8578</b>	<b>9.8489</b>	<b>6.0731</b>	<b>0.0150</b>		<b>0.3991</b>	<b>0.3991</b>		<b>0.3672</b>	<b>0.3672</b>		<b>1,451.415 2</b>	<b>1,451.415 2</b>	<b>0.4694</b>		<b>1,463.150 6</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.0561	0.0183	1.9000e-004	5.9300e-003	5.5000e-004	6.4700e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7118	20.7118	8.4000e-004	3.0400e-003	21.6401
Worker	0.0355	0.0243	0.2725	7.0000e-004	0.0821	4.3000e-004	0.0825	0.0218	3.9000e-004	0.0222		70.8829	70.8829	2.7300e-003	2.3600e-003	71.6531
<b>Total</b>	<b>0.0376</b>	<b>0.0804</b>	<b>0.2908</b>	<b>8.9000e-004</b>	<b>0.0880</b>	<b>9.8000e-004</b>	<b>0.0890</b>	<b>0.0235</b>	<b>9.1000e-004</b>	<b>0.0244</b>		<b>91.5948</b>	<b>91.5948</b>	<b>3.5700e-003</b>	<b>5.4000e-003</b>	<b>93.2932</b>



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2022**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8578	9.8489	6.0731	0.0150		0.3991	0.3991		0.3672	0.3672	0.0000	1,451.415 2	1,451.415 2	0.4694		1,463.150 6
<b>Total</b>	<b>0.8578</b>	<b>9.8489</b>	<b>6.0731</b>	<b>0.0150</b>		<b>0.3991</b>	<b>0.3991</b>		<b>0.3672</b>	<b>0.3672</b>	<b>0.0000</b>	<b>1,451.415 2</b>	<b>1,451.415 2</b>	<b>0.4694</b>		<b>1,463.150 6</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.0561	0.0183	1.9000e-004	5.9300e-003	5.5000e-004	6.4700e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7118	20.7118	8.4000e-004	3.0400e-003	21.6401
Worker	0.0355	0.0243	0.2725	7.0000e-004	0.0821	4.3000e-004	0.0825	0.0218	3.9000e-004	0.0222		70.8829	70.8829	2.7300e-003	2.3600e-003	71.6531
<b>Total</b>	<b>0.0376</b>	<b>0.0804</b>	<b>0.2908</b>	<b>8.9000e-004</b>	<b>0.0880</b>	<b>9.8000e-004</b>	<b>0.0890</b>	<b>0.0235</b>	<b>9.1000e-004</b>	<b>0.0244</b>		<b>91.5948</b>	<b>91.5948</b>	<b>3.5700e-003</b>	<b>5.4000e-003</b>	<b>93.2932</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8086	9.0304	5.9561	0.0150		0.3636	0.3636		0.3345	0.3345		1,451.4419	1,451.4419	0.4694		1,463.1776
<b>Total</b>	<b>0.8086</b>	<b>9.0304</b>	<b>5.9561</b>	<b>0.0150</b>		<b>0.3636</b>	<b>0.3636</b>		<b>0.3345</b>	<b>0.3345</b>		<b>1,451.4419</b>	<b>1,451.4419</b>	<b>0.4694</b>		<b>1,463.1776</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2800e-003	0.0468	0.0162	1.8000e-004	5.9300e-003	2.8000e-004	6.2100e-003	1.7100e-003	2.7000e-004	1.9700e-003		19.9825	19.9825	8.3000e-004	2.9400e-003	20.8790
Worker	0.0330	0.0215	0.2506	6.8000e-004	0.0821	4.0000e-004	0.0825	0.0218	3.7000e-004	0.0222		68.7186	68.7186	2.4700e-003	2.1800e-003	69.4291
<b>Total</b>	<b>0.0343</b>	<b>0.0683</b>	<b>0.2667</b>	<b>8.6000e-004</b>	<b>0.0880</b>	<b>6.8000e-004</b>	<b>0.0887</b>	<b>0.0235</b>	<b>6.4000e-004</b>	<b>0.0241</b>		<b>88.7011</b>	<b>88.7011</b>	<b>3.3000e-003</b>	<b>5.1200e-003</b>	<b>90.3081</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8086	9.0304	5.9561	0.0150		0.3636	0.3636		0.3345	0.3345	0.0000	1,451.4419	1,451.4419	0.4694		1,463.1776
<b>Total</b>	<b>0.8086</b>	<b>9.0304</b>	<b>5.9561</b>	<b>0.0150</b>		<b>0.3636</b>	<b>0.3636</b>		<b>0.3345</b>	<b>0.3345</b>	<b>0.0000</b>	<b>1,451.4419</b>	<b>1,451.4419</b>	<b>0.4694</b>		<b>1,463.1776</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2800e-003	0.0468	0.0162	1.8000e-004	5.9300e-003	2.8000e-004	6.2100e-003	1.7100e-003	2.7000e-004	1.9700e-003		19.9825	19.9825	8.3000e-004	2.9400e-003	20.8790
Worker	0.0330	0.0215	0.2506	6.8000e-004	0.0821	4.0000e-004	0.0825	0.0218	3.7000e-004	0.0222		68.7186	68.7186	2.4700e-003	2.1800e-003	69.4291
<b>Total</b>	<b>0.0343</b>	<b>0.0683</b>	<b>0.2667</b>	<b>8.6000e-004</b>	<b>0.0880</b>	<b>6.8000e-004</b>	<b>0.0887</b>	<b>0.0235</b>	<b>6.4000e-004</b>	<b>0.0241</b>		<b>88.7011</b>	<b>88.7011</b>	<b>3.3000e-003</b>	<b>5.1200e-003</b>	<b>90.3081</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 4 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7028	7.6310	3.6688	0.0115		0.3187	0.3187		0.2932	0.2932		1,117.6385	1,117.6385	0.3615		1,126.6752
<b>Total</b>	<b>0.7028</b>	<b>7.6310</b>	<b>3.6688</b>	<b>0.0115</b>		<b>0.3187</b>	<b>0.3187</b>		<b>0.2932</b>	<b>0.2932</b>		<b>1,117.6385</b>	<b>1,117.6385</b>	<b>0.3615</b>		<b>1,126.6752</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2800e-003	0.0468	0.0162	1.8000e-004	5.9300e-003	2.8000e-004	6.2100e-003	1.7100e-003	2.7000e-004	1.9700e-003		19.9825	19.9825	8.3000e-004	2.9400e-003	20.8790
Worker	0.0330	0.0215	0.2506	6.8000e-004	0.0821	4.0000e-004	0.0825	0.0218	3.7000e-004	0.0222		68.7186	68.7186	2.4700e-003	2.1800e-003	69.4291
<b>Total</b>	<b>0.0343</b>	<b>0.0683</b>	<b>0.2667</b>	<b>8.6000e-004</b>	<b>0.0880</b>	<b>6.8000e-004</b>	<b>0.0887</b>	<b>0.0235</b>	<b>6.4000e-004</b>	<b>0.0241</b>		<b>88.7011</b>	<b>88.7011</b>	<b>3.3000e-003</b>	<b>5.1200e-003</b>	<b>90.3081</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 4 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7028	7.6310	3.6688	0.0115		0.3187	0.3187		0.2932	0.2932	0.0000	1,117.6385	1,117.6385	0.3615		1,126.6752
<b>Total</b>	<b>0.7028</b>	<b>7.6310</b>	<b>3.6688</b>	<b>0.0115</b>		<b>0.3187</b>	<b>0.3187</b>		<b>0.2932</b>	<b>0.2932</b>	<b>0.0000</b>	<b>1,117.6385</b>	<b>1,117.6385</b>	<b>0.3615</b>		<b>1,126.6752</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2800e-003	0.0468	0.0162	1.8000e-004	5.9300e-003	2.8000e-004	6.2100e-003	1.7100e-003	2.7000e-004	1.9700e-003		19.9825	19.9825	8.3000e-004	2.9400e-003	20.8790
Worker	0.0330	0.0215	0.2506	6.8000e-004	0.0821	4.0000e-004	0.0825	0.0218	3.7000e-004	0.0222		68.7186	68.7186	2.4700e-003	2.1800e-003	69.4291
<b>Total</b>	<b>0.0343</b>	<b>0.0683</b>	<b>0.2667</b>	<b>8.6000e-004</b>	<b>0.0880</b>	<b>6.8000e-004</b>	<b>0.0887</b>	<b>0.0235</b>	<b>6.4000e-004</b>	<b>0.0241</b>		<b>88.7011</b>	<b>88.7011</b>	<b>3.3000e-003</b>	<b>5.1200e-003</b>	<b>90.3081</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 5 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.0000</b>					<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
<b>Total</b>					<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 5 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.0000</b>					<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
<b>Total</b>					<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 6 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.8969					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.8969</b>					<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
<b>Total</b>					<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 6 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.8969					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.8969</b>					<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
<b>Total</b>					<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.2 Energy by Land Use - NaturalGas**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0159	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0159	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0159					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0159</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0159					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0159</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Summer

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
----------------	--------	-----------	-----------	-------------	-------------	-----------

**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**GSD Construction**

**Santa Barbara-South of Santa Ynez Range County, Winter**

**1.0 Project Characteristics**

**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	26.00	12,700.00	0

**1.2 Other Project Characteristics**

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	37
<b>Climate Zone</b>	8			<b>Operational Year</b>	2023
<b>Utility Company</b>	Southern California Edison				
<b>CO2 Intensity (lb/MWhr)</b>	390.98	<b>CH4 Intensity (lb/MWhr)</b>	0.033	<b>N2O Intensity (lb/MWhr)</b>	0.004

**1.3 User Entered Comments & Non-Default Data**

- Project Characteristics -
- Land Use - Per Applicant
- Construction Phase - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment - Per Applicant
- Off-road Equipment -
- Trips and VMT - Per Applicant
- Grading - Per Applicant
- Architectural Coating - Per Applicant



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

Consumer Products - Per Applicant

Area Coating - Per Applicant

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	6,350.00	5,000.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	19,050.00	0.00
tblAreaCoating	Area_Nonresidential_Exterior	6350	5000
tblAreaCoating	Area_Nonresidential_Interior	19050	0
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	440.00	360.00
tblConstructionPhase	NumDays	440.00	60.00
tblConstructionPhase	NumDays	45.00	40.00
tblConstructionPhase	NumDays	35.00	20.00
tblConstructionPhase	NumDays	20.00	40.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblGrading	AcresOfGrading	20.00	0.30
tblGrading	MaterialExported	0.00	700.00
tblGrading	MaterialImported	0.00	2,500.00
tblLandUse	LandUseSquareFeet	0.00	12,700.00
tblLandUse	LotAcreage	0.00	26.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	1.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

tbITripsAndVMT	HaulingTripNumber	313.00	210.00
tbITripsAndVMT	VendorTripNumber	0.00	1.00
tbITripsAndVMT	VendorTripNumber	0.00	1.00
tbITripsAndVMT	VendorTripNumber	2.00	1.00
tbITripsAndVMT	VendorTripNumber	2.00	1.00
tbITripsAndVMT	WorkerTripNumber	5.00	13.00
tbITripsAndVMT	WorkerTripNumber	5.00	13.00

**2.0 Emissions Summary**

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GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.1 Overall Construction (Maximum Daily Emission)**

**Unmitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.7826	20.5212	15.6995	0.0311	0.1992	0.9107	1.1099	0.0512	0.8384	0.8896	0.0000	3,067.623 2	3,067.623 2	0.8659	0.0671	3,109.269 8
2022	1.5843	17.9035	15.4213	0.0309	0.1992	0.7762	0.9754	0.0512	0.7145	0.7656	0.0000	3,054.369 7	3,054.369 7	0.8658	0.0654	3,095.506 4
2023	2.8969	9.1033	6.2335	0.0158	0.0880	0.3643	0.4523	0.0235	0.3352	0.3587	0.0000	1,538.767 2	1,538.767 2	0.4730	5.3300e-003	1,552.179 9
<b>Maximum</b>	<b>2.8969</b>	<b>20.5212</b>	<b>15.6995</b>	<b>0.0311</b>	<b>0.1992</b>	<b>0.9107</b>	<b>1.1099</b>	<b>0.0512</b>	<b>0.8384</b>	<b>0.8896</b>	<b>0.0000</b>	<b>3,067.623 2</b>	<b>3,067.623 2</b>	<b>0.8659</b>	<b>0.0671</b>	<b>3,109.269 8</b>

**Mitigated Construction**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	1.7826	20.5212	15.6995	0.0311	0.1992	0.9107	1.1099	0.0512	0.8384	0.8896	0.0000	3,067.623 2	3,067.623 2	0.8659	0.0671	3,109.269 8
2022	1.5843	17.9035	15.4213	0.0309	0.1992	0.7762	0.9754	0.0512	0.7145	0.7656	0.0000	3,054.369 7	3,054.369 7	0.8658	0.0654	3,095.506 4
2023	2.8969	9.1033	6.2335	0.0158	0.0880	0.3643	0.4523	0.0235	0.3352	0.3587	0.0000	1,538.767 2	1,538.767 2	0.4730	5.3300e-003	1,552.179 9
<b>Maximum</b>	<b>2.8969</b>	<b>20.5212</b>	<b>15.6995</b>	<b>0.0311</b>	<b>0.1992</b>	<b>0.9107</b>	<b>1.1099</b>	<b>0.0512</b>	<b>0.8384</b>	<b>0.8896</b>	<b>0.0000</b>	<b>3,067.623 2</b>	<b>3,067.623 2</b>	<b>0.8659</b>	<b>0.0671</b>	<b>3,109.269 8</b>



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**2.2 Overall Operational**

**Unmitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0159	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0159</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.3000e-004</b>

**Mitigated Operational**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.0159	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.0159</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>	<b>0.0000</b>	<b>2.3000e-004</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**3.0 Construction Detail**

**Construction Phase**

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	1	Site Preparation	11/9/2021	1/3/2022	5	40	
2	2	Grading	1/4/2022	2/28/2022	5	40	
3	3	Building Construction	3/1/2022	7/17/2023	5	360	
4	4	Building Construction	7/18/2023	10/9/2023	5	60	
5	5	Paving	10/10/2023	11/6/2023	5	20	
6	6	Architectural Coating	11/7/2023	12/4/2023	5	20	

**Acres of Grading (Site Preparation Phase): 0.3**

**Acres of Grading (Grading Phase): 0**

**Acres of Paving: 0**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 5,000; Striped Parking Area: 0 (Architectural Coating – sqft)**

**OffRoad Equipment**

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
1	Crawler Tractors	1	8.00	212	0.43
1	Other Construction Equipment	2	8.00	172	0.42
1	Rough Terrain Forklifts	1	8.00	100	0.40
1	Tractors/Loaders/Backhoes	1	8.00	97	0.37
2	Cranes	1	8.00	231	0.29

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

2	Excavators	1	8.00	158	0.38
2	Other Construction Equipment	2	8.00	172	0.42
3	Cranes	2	8.00	231	0.29
3	Rough Terrain Forklifts	1	8.00	100	0.40
4	Cranes	2	8.00	231	0.29

**Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class	
1		5	13.00	1.00	210.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
2		4	10.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
3		3	13.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
4		2	13.00	1.00	0.00	8.30	6.40	20.00	LD_Mix	HDT_Mix	HHDT
5				0.00	0.00	8.30	6.40				
6				0.00	0.00	8.30	6.40				

**3.1 Mitigation Measures Construction**

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2021**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0198	0.0000	0.0198	2.6500e-003	0.0000	2.6500e-003			0.0000			0.0000
Off-Road	1.7011	19.2380	15.0997	0.0268		0.8946	0.8946		0.8230	0.8230		2,592.0803	2,592.0803	0.8383		2,613.0386
<b>Total</b>	<b>1.7011</b>	<b>19.2380</b>	<b>15.0997</b>	<b>0.0268</b>	<b>0.0198</b>	<b>0.8946</b>	<b>0.9144</b>	<b>2.6500e-003</b>	<b>0.8230</b>	<b>0.8257</b>		<b>2,592.0803</b>	<b>2,592.0803</b>	<b>0.8383</b>		<b>2,613.0386</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0369	1.1836	0.2701	3.4100e-003	0.0914	0.0147	0.1061	0.0250	0.0140	0.0390		382.7762	382.7762	0.0234	0.0612	401.5947
Vendor	3.2700e-003	0.0682	0.0219	1.9000e-004	5.9300e-003	9.9000e-004	6.9200e-003	1.7100e-003	9.5000e-004	2.6600e-003		21.2379	21.2379	8.5000e-004	3.1200e-003	22.1895
Worker	0.0414	0.0314	0.3077	7.1000e-004	0.0821	4.5000e-004	0.0826	0.0218	4.2000e-004	0.0222		71.5288	71.5288	3.3400e-003	2.8000e-003	72.4471
<b>Total</b>	<b>0.0815</b>	<b>1.2832</b>	<b>0.5997</b>	<b>4.3100e-003</b>	<b>0.1795</b>	<b>0.0161</b>	<b>0.1956</b>	<b>0.0485</b>	<b>0.0154</b>	<b>0.0639</b>		<b>475.5429</b>	<b>475.5429</b>	<b>0.0276</b>	<b>0.0671</b>	<b>496.2312</b>



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2021**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0198	0.0000	0.0198	2.6500e-003	0.0000	2.6500e-003			0.0000			0.0000
Off-Road	1.7011	19.2380	15.0997	0.0268		0.8946	0.8946		0.8230	0.8230	0.0000	2,592.0803	2,592.0803	0.8383		2,613.0386
<b>Total</b>	<b>1.7011</b>	<b>19.2380</b>	<b>15.0997</b>	<b>0.0268</b>	<b>0.0198</b>	<b>0.8946</b>	<b>0.9144</b>	<b>2.6500e-003</b>	<b>0.8230</b>	<b>0.8257</b>	<b>0.0000</b>	<b>2,592.0803</b>	<b>2,592.0803</b>	<b>0.8383</b>		<b>2,613.0386</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0369	1.1836	0.2701	3.4100e-003	0.0914	0.0147	0.1061	0.0250	0.0140	0.0390		382.7762	382.7762	0.0234	0.0612	401.5947
Vendor	3.2700e-003	0.0682	0.0219	1.9000e-004	5.9300e-003	9.9000e-004	6.9200e-003	1.7100e-003	9.5000e-004	2.6600e-003		21.2379	21.2379	8.5000e-004	3.1200e-003	22.1895
Worker	0.0414	0.0314	0.3077	7.1000e-004	0.0821	4.5000e-004	0.0826	0.0218	4.2000e-004	0.0222		71.5288	71.5288	3.3400e-003	2.8000e-003	72.4471
<b>Total</b>	<b>0.0815</b>	<b>1.2832</b>	<b>0.5997</b>	<b>4.3100e-003</b>	<b>0.1795</b>	<b>0.0161</b>	<b>0.1956</b>	<b>0.0485</b>	<b>0.0154</b>	<b>0.0639</b>		<b>475.5429</b>	<b>475.5429</b>	<b>0.0276</b>	<b>0.0671</b>	<b>496.2312</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0198	0.0000	0.0198	2.6500e-003	0.0000	2.6500e-003			0.0000			0.0000
Off-Road	1.5205	16.7940	14.8817	0.0268		0.7666	0.7666		0.7053	0.7053		2,590.6883	2,590.6883	0.8379		2,611.6353
<b>Total</b>	<b>1.5205</b>	<b>16.7940</b>	<b>14.8817</b>	<b>0.0268</b>	<b>0.0198</b>	<b>0.7666</b>	<b>0.7863</b>	<b>2.6500e-003</b>	<b>0.7053</b>	<b>0.7079</b>		<b>2,590.6883</b>	<b>2,590.6883</b>	<b>0.8379</b>		<b>2,611.6353</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0232	1.0241	0.2380	3.3100e-003	0.0914	8.6600e-003	0.1001	0.0250	8.2900e-003	0.0333		373.5269	373.5269	0.0241	0.0598	391.9431
Vendor	2.1400e-003	0.0577	0.0188	1.9000e-004	5.9300e-003	5.5000e-004	6.4800e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7200	20.7200	8.3000e-004	3.0500e-003	21.6496
Worker	0.0385	0.0277	0.2828	6.9000e-004	0.0821	4.3000e-004	0.0825	0.0218	3.9000e-004	0.0222		69.4344	69.4344	3.0200e-003	2.5800e-003	70.2785
<b>Total</b>	<b>0.0638</b>	<b>1.1095</b>	<b>0.5396</b>	<b>4.1900e-003</b>	<b>0.1795</b>	<b>9.6400e-003</b>	<b>0.1891</b>	<b>0.0485</b>	<b>9.2000e-003</b>	<b>0.0577</b>		<b>463.6814</b>	<b>463.6814</b>	<b>0.0279</b>	<b>0.0654</b>	<b>483.8711</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.2 1 - 2022**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0198	0.0000	0.0198	2.6500e-003	0.0000	2.6500e-003			0.0000			0.0000
Off-Road	1.5205	16.7940	14.8817	0.0268		0.7666	0.7666		0.7053	0.7053	0.0000	2,590.6883	2,590.6883	0.8379		2,611.6353
<b>Total</b>	<b>1.5205</b>	<b>16.7940</b>	<b>14.8817</b>	<b>0.0268</b>	<b>0.0198</b>	<b>0.7666</b>	<b>0.7863</b>	<b>2.6500e-003</b>	<b>0.7053</b>	<b>0.7079</b>	<b>0.0000</b>	<b>2,590.6883</b>	<b>2,590.6883</b>	<b>0.8379</b>		<b>2,611.6353</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0232	1.0241	0.2380	3.3100e-003	0.0914	8.6600e-003	0.1001	0.0250	8.2900e-003	0.0333		373.5269	373.5269	0.0241	0.0598	391.9431
Vendor	2.1400e-003	0.0577	0.0188	1.9000e-004	5.9300e-003	5.5000e-004	6.4800e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7200	20.7200	8.3000e-004	3.0500e-003	21.6496
Worker	0.0385	0.0277	0.2828	6.9000e-004	0.0821	4.3000e-004	0.0825	0.0218	3.9000e-004	0.0222		69.4344	69.4344	3.0200e-003	2.5800e-003	70.2785
<b>Total</b>	<b>0.0638</b>	<b>1.1095</b>	<b>0.5396</b>	<b>4.1900e-003</b>	<b>0.1795</b>	<b>9.6400e-003</b>	<b>0.1891</b>	<b>0.0485</b>	<b>9.2000e-003</b>	<b>0.0577</b>		<b>463.6814</b>	<b>463.6814</b>	<b>0.0279</b>	<b>0.0654</b>	<b>483.8711</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3274	13.5915	13.1880	0.0233		0.6578	0.6578		0.6052	0.6052		2,255.508 1	2,255.508 1	0.7295		2,273.745 1
<b>Total</b>	<b>1.3274</b>	<b>13.5915</b>	<b>13.1880</b>	<b>0.0233</b>	<b>0.0000</b>	<b>0.6578</b>	<b>0.6578</b>	<b>0.0000</b>	<b>0.6052</b>	<b>0.6052</b>		<b>2,255.508 1</b>	<b>2,255.508 1</b>	<b>0.7295</b>		<b>2,273.745 1</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.0577	0.0188	1.9000e-004	5.9300e-003	5.5000e-004	6.4800e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7200	20.7200	8.3000e-004	3.0500e-003	21.6496
Worker	0.0296	0.0213	0.2175	5.3000e-004	0.0632	3.3000e-004	0.0635	0.0168	3.0000e-004	0.0171		53.4111	53.4111	2.3200e-003	1.9800e-003	54.0604
<b>Total</b>	<b>0.0318</b>	<b>0.0790</b>	<b>0.2363</b>	<b>7.2000e-004</b>	<b>0.0691</b>	<b>8.8000e-004</b>	<b>0.0700</b>	<b>0.0185</b>	<b>8.2000e-004</b>	<b>0.0193</b>		<b>74.1311</b>	<b>74.1311</b>	<b>3.1500e-003</b>	<b>5.0300e-003</b>	<b>75.7099</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.3 2 - 2022**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	1.3274	13.5915	13.1880	0.0233		0.6578	0.6578		0.6052	0.6052	0.0000	2,255.508 1	2,255.508 1	0.7295		2,273.745 1
<b>Total</b>	<b>1.3274</b>	<b>13.5915</b>	<b>13.1880</b>	<b>0.0233</b>	<b>0.0000</b>	<b>0.6578</b>	<b>0.6578</b>	<b>0.0000</b>	<b>0.6052</b>	<b>0.6052</b>	<b>0.0000</b>	<b>2,255.508 1</b>	<b>2,255.508 1</b>	<b>0.7295</b>		<b>2,273.745 1</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.0577	0.0188	1.9000e-004	5.9300e-003	5.5000e-004	6.4800e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7200	20.7200	8.3000e-004	3.0500e-003	21.6496
Worker	0.0296	0.0213	0.2175	5.3000e-004	0.0632	3.3000e-004	0.0635	0.0168	3.0000e-004	0.0171		53.4111	53.4111	2.3200e-003	1.9800e-003	54.0604
<b>Total</b>	<b>0.0318</b>	<b>0.0790</b>	<b>0.2363</b>	<b>7.2000e-004</b>	<b>0.0691</b>	<b>8.8000e-004</b>	<b>0.0700</b>	<b>0.0185</b>	<b>8.2000e-004</b>	<b>0.0193</b>		<b>74.1311</b>	<b>74.1311</b>	<b>3.1500e-003</b>	<b>5.0300e-003</b>	<b>75.7099</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2022**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8578	9.8489	6.0731	0.0150		0.3991	0.3991		0.3672	0.3672		1,451.415 2	1,451.415 2	0.4694		1,463.150 6
<b>Total</b>	<b>0.8578</b>	<b>9.8489</b>	<b>6.0731</b>	<b>0.0150</b>		<b>0.3991</b>	<b>0.3991</b>		<b>0.3672</b>	<b>0.3672</b>		<b>1,451.415 2</b>	<b>1,451.415 2</b>	<b>0.4694</b>		<b>1,463.150 6</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.0577	0.0188	1.9000e-004	5.9300e-003	5.5000e-004	6.4800e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7200	20.7200	8.3000e-004	3.0500e-003	21.6496
Worker	0.0385	0.0277	0.2828	6.9000e-004	0.0821	4.3000e-004	0.0825	0.0218	3.9000e-004	0.0222		69.4344	69.4344	3.0200e-003	2.5800e-003	70.2785
<b>Total</b>	<b>0.0406</b>	<b>0.0854</b>	<b>0.3016</b>	<b>8.8000e-004</b>	<b>0.0880</b>	<b>9.8000e-004</b>	<b>0.0890</b>	<b>0.0235</b>	<b>9.1000e-004</b>	<b>0.0244</b>		<b>90.1545</b>	<b>90.1545</b>	<b>3.8500e-003</b>	<b>5.6300e-003</b>	<b>91.9280</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2022**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8578	9.8489	6.0731	0.0150		0.3991	0.3991		0.3672	0.3672	0.0000	1,451.415 2	1,451.415 2	0.4694		1,463.150 6
<b>Total</b>	<b>0.8578</b>	<b>9.8489</b>	<b>6.0731</b>	<b>0.0150</b>		<b>0.3991</b>	<b>0.3991</b>		<b>0.3672</b>	<b>0.3672</b>	<b>0.0000</b>	<b>1,451.415 2</b>	<b>1,451.415 2</b>	<b>0.4694</b>		<b>1,463.150 6</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	2.1400e-003	0.0577	0.0188	1.9000e-004	5.9300e-003	5.5000e-004	6.4800e-003	1.7100e-003	5.2000e-004	2.2300e-003		20.7200	20.7200	8.3000e-004	3.0500e-003	21.6496
Worker	0.0385	0.0277	0.2828	6.9000e-004	0.0821	4.3000e-004	0.0825	0.0218	3.9000e-004	0.0222		69.4344	69.4344	3.0200e-003	2.5800e-003	70.2785
<b>Total</b>	<b>0.0406</b>	<b>0.0854</b>	<b>0.3016</b>	<b>8.8000e-004</b>	<b>0.0880</b>	<b>9.8000e-004</b>	<b>0.0890</b>	<b>0.0235</b>	<b>9.1000e-004</b>	<b>0.0244</b>		<b>90.1545</b>	<b>90.1545</b>	<b>3.8500e-003</b>	<b>5.6300e-003</b>	<b>91.9280</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8086	9.0304	5.9561	0.0150		0.3636	0.3636		0.3345	0.3345		1,451.4419	1,451.4419	0.4694		1,463.1776
<b>Total</b>	<b>0.8086</b>	<b>9.0304</b>	<b>5.9561</b>	<b>0.0150</b>		<b>0.3636</b>	<b>0.3636</b>		<b>0.3345</b>	<b>0.3345</b>		<b>1,451.4419</b>	<b>1,451.4419</b>	<b>0.4694</b>		<b>1,463.1776</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2600e-003	0.0483	0.0166	1.8000e-004	5.9300e-003	2.8000e-004	6.2100e-003	1.7100e-003	2.7000e-004	1.9700e-003		20.0068	20.0068	8.3000e-004	2.9500e-003	20.9053
Worker	0.0359	0.0246	0.2608	6.7000e-004	0.0821	4.0000e-004	0.0825	0.0218	3.7000e-004	0.0222		67.3184	67.3184	2.7400e-003	2.3800e-003	68.0970
<b>Total</b>	<b>0.0372</b>	<b>0.0728</b>	<b>0.2774</b>	<b>8.5000e-004</b>	<b>0.0880</b>	<b>6.8000e-004</b>	<b>0.0887</b>	<b>0.0235</b>	<b>6.4000e-004</b>	<b>0.0241</b>		<b>87.3252</b>	<b>87.3252</b>	<b>3.5700e-003</b>	<b>5.3300e-003</b>	<b>89.0023</b>



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.4 3 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8086	9.0304	5.9561	0.0150		0.3636	0.3636		0.3345	0.3345	0.0000	1,451.4419	1,451.4419	0.4694		1,463.1776
<b>Total</b>	<b>0.8086</b>	<b>9.0304</b>	<b>5.9561</b>	<b>0.0150</b>		<b>0.3636</b>	<b>0.3636</b>		<b>0.3345</b>	<b>0.3345</b>	<b>0.0000</b>	<b>1,451.4419</b>	<b>1,451.4419</b>	<b>0.4694</b>		<b>1,463.1776</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2600e-003	0.0483	0.0166	1.8000e-004	5.9300e-003	2.8000e-004	6.2100e-003	1.7100e-003	2.7000e-004	1.9700e-003		20.0068	20.0068	8.3000e-004	2.9500e-003	20.9053
Worker	0.0359	0.0246	0.2608	6.7000e-004	0.0821	4.0000e-004	0.0825	0.0218	3.7000e-004	0.0222		67.3184	67.3184	2.7400e-003	2.3800e-003	68.0970
<b>Total</b>	<b>0.0372</b>	<b>0.0728</b>	<b>0.2774</b>	<b>8.5000e-004</b>	<b>0.0880</b>	<b>6.8000e-004</b>	<b>0.0887</b>	<b>0.0235</b>	<b>6.4000e-004</b>	<b>0.0241</b>		<b>87.3252</b>	<b>87.3252</b>	<b>3.5700e-003</b>	<b>5.3300e-003</b>	<b>89.0023</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 4 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7028	7.6310	3.6688	0.0115		0.3187	0.3187		0.2932	0.2932		1,117.6385	1,117.6385	0.3615		1,126.6752
<b>Total</b>	<b>0.7028</b>	<b>7.6310</b>	<b>3.6688</b>	<b>0.0115</b>		<b>0.3187</b>	<b>0.3187</b>		<b>0.2932</b>	<b>0.2932</b>		<b>1,117.6385</b>	<b>1,117.6385</b>	<b>0.3615</b>		<b>1,126.6752</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2600e-003	0.0483	0.0166	1.8000e-004	5.9300e-003	2.8000e-004	6.2100e-003	1.7100e-003	2.7000e-004	1.9700e-003		20.0068	20.0068	8.3000e-004	2.9500e-003	20.9053
Worker	0.0359	0.0246	0.2608	6.7000e-004	0.0821	4.0000e-004	0.0825	0.0218	3.7000e-004	0.0222		67.3184	67.3184	2.7400e-003	2.3800e-003	68.0970
<b>Total</b>	<b>0.0372</b>	<b>0.0728</b>	<b>0.2774</b>	<b>8.5000e-004</b>	<b>0.0880</b>	<b>6.8000e-004</b>	<b>0.0887</b>	<b>0.0235</b>	<b>6.4000e-004</b>	<b>0.0241</b>		<b>87.3252</b>	<b>87.3252</b>	<b>3.5700e-003</b>	<b>5.3300e-003</b>	<b>89.0023</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.5 4 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.7028	7.6310	3.6688	0.0115		0.3187	0.3187		0.2932	0.2932	0.0000	1,117.6385	1,117.6385	0.3615		1,126.6752
<b>Total</b>	<b>0.7028</b>	<b>7.6310</b>	<b>3.6688</b>	<b>0.0115</b>		<b>0.3187</b>	<b>0.3187</b>		<b>0.2932</b>	<b>0.2932</b>	<b>0.0000</b>	<b>1,117.6385</b>	<b>1,117.6385</b>	<b>0.3615</b>		<b>1,126.6752</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.2600e-003	0.0483	0.0166	1.8000e-004	5.9300e-003	2.8000e-004	6.2100e-003	1.7100e-003	2.7000e-004	1.9700e-003		20.0068	20.0068	8.3000e-004	2.9500e-003	20.9053
Worker	0.0359	0.0246	0.2608	6.7000e-004	0.0821	4.0000e-004	0.0825	0.0218	3.7000e-004	0.0222		67.3184	67.3184	2.7400e-003	2.3800e-003	68.0970
<b>Total</b>	<b>0.0372</b>	<b>0.0728</b>	<b>0.2774</b>	<b>8.5000e-004</b>	<b>0.0880</b>	<b>6.8000e-004</b>	<b>0.0887</b>	<b>0.0235</b>	<b>6.4000e-004</b>	<b>0.0241</b>		<b>87.3252</b>	<b>87.3252</b>	<b>3.5700e-003</b>	<b>5.3300e-003</b>	<b>89.0023</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 5 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.0000</b>					<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
<b>Total</b>					<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.6 5 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>0.0000</b>					<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
<b>Total</b>					<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 6 - 2023**

**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.8969					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.8969</b>					<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

**Unmitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
<b>Total</b>					<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**3.7 6 - 2023**

**Mitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	2.8969					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.8969</b>					<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
<b>Total</b>					<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>			<b>0.0000</b>			<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**4.0 Operational Detail - Mobile**

**4.1 Mitigation Measures Mobile**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

**4.2 Trip Summary Information**

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

**4.3 Trip Type Information**

Land Use	Miles			Trip %			Trip Purpose %		
	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	6.60	5.50	6.40	0.00	0.00	0.00	0	0	0

**4.4 Fleet Mix**

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.492113	0.052876	0.208088	0.152800	0.029700	0.007146	0.010959	0.006131	0.000966	0.000597	0.030829	0.003523	0.004272



GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.0 Energy Detail**

Historical Energy Use: N

**5.1 Mitigation Measures Energy**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

**5.2 Energy by Land Use - NaturalGas**

**Unmitigated**

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**5.2 Energy by Land Use - NaturalGas**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>	<b>0.0000</b>

**6.0 Area Detail**

**6.1 Mitigation Measures Area**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0159	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	0.0159	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

**Unmitigated**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0159					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0159</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**6.2 Area by SubCategory**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0159					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
<b>Total</b>	<b>0.0159</b>	<b>0.0000</b>	<b>1.0000e-004</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>0.0000</b>	<b>0.0000</b>		<b>2.2000e-004</b>	<b>2.2000e-004</b>	<b>0.0000</b>		<b>2.3000e-004</b>

**7.0 Water Detail**

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**7.1 Mitigation Measures Water**

GSD Construction - Santa Barbara-South of Santa Ynez Range County, Winter

**EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied**

**8.0 Waste Detail**

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**8.1 Mitigation Measures Waste**

**9.0 Operational Offroad**

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Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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**10.0 Stationary Equipment**

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**Fire Pumps and Emergency Generators**

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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**Boilers**

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type
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**User Defined Equipment**

Equipment Type	Number
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**11.0 Vegetation**

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**APPENDIX C – PLANT AND WILDLIFE COMPENDIUM**

Plants  
Vascular Species  
*Eudicots*

**ANACARDIACEAE—SUMAC OR CASHEW FAMILY**

- \* *Schinus terebinthifolius*—Brazilian peppertree

**ASTERACEAE—SUNFLOWER FAMILY**

- \* *Cotula australis*—Australia waterbuttons
- \* *Erigeron bonariensis*—asthmaweed  
*Erigeron canadensis*—Canadian horseweed
- \* *Sonchus oleraceus*—common sowthistle

**CACTACEAE—CACTUS FAMILY**

- Opuntia occidentalis*—pricklypear

**CHENOPODIACEAE—GOOSEFOOT FAMILY**

- \* *Chenopodium macrospermum*—largeseed goosefoot
- \* *Chenopodium murale*—nettleleaf goosefoot

**FABACEAE—LEGUME FAMILY**

- \* *Acacia baileyana*—cootamundra wattle
- \* *Albizia lophantha*—plume albizia
- \* *Medicago polymorpha*—burclover

**FRANKENIACEAE—FRANKENIA FAMILY**

- Frankenia salina*—alkali heath

**JUGLANDACEAE—WALNUT FAMILY**

- \* *Juglans regia*—English walnut

**MALVACEAE—MALLOW FAMILY**

- \* *Malva parviflora*—cheeseweed mallow

**MORACEAE—MULBERRY FAMILY**

- \* *Ficus microcarpa*—Chinese banyan

**MYRTACEAE—MYRTLE FAMILY**

- \* *Eucalyptus globulus*—Tasmanian bluegum
- \* *Melaleuca viminalis*—weeping bottlebrush

**OXALIDACEAE—OXALIS FAMILY**

- \* *Eucalyptus citriodora*—Bermuda buttercup

**PLANTAGINACEAE—PLANTAIN FAMILY**

- \* *Plantago lanceolata*—narrowleaf plantain

**POLYGONACEAE—BUCKWHEAT FAMILY**

- \* *Polygonum aviculare*—prostrate knotweed

**ROSACEAE—ROSE FAMILY**

- \* *Rhaphiolepis indica*—Indian hawthorn

**SCROPHULARIACEAE—FIGWORT FAMILY**

- \* *Myoporum laetum*—myoporum

**SOLANACEAE—NIGHTSHADE FAMILY**

- \* *Brugmansia versicolor*—angel's trumpet

**URTICACEAE—NETTLE FAMILY**

*Urtica dioica*—stinging nettle

*Monocots*

**AGAVACEAE—AGAVE FAMILY**

- \* *Agave americana*—American century plant
- \* *Yucca elephantipes*—giant yucca

**ARACEAE—ARUM FAMILY**

- \* *Zantedeschia aethiopica*—calla lily

**ARECACEAE—PALM FAMILY**

- \* *Phoenix canariensis*—Canary Island date palm
- \* *Washingtonia robusta*—Washington fan palm

**ASPHODELACEAE—ASPHODEL FAMILY**

- \* *Aloe maculata*—no common name

**POACEAE—GRASS FAMILY**

- \* *Cynodon dactylon*—Bermudagrass
- Festuca californica*—California fescue
- \* *Festuca perennis*—perennial rye grass

**STRELITZIACEAE—NO COMMON NAME**

- \* *Strelitzia nicolai*—giant bird of paradise



## Wildlife

### Birds

#### *Finches*

#### **FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES**

*Haemorhous mexicanus*—house finch

*Spinus tristis*—American goldfinch

#### *Flycatchers*

#### **TYRANNIDAE—TYRANT FLYCATCHERS**

*Sayornis nigricans*—black phoebe

#### *Hawks*

#### **ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES**

*Buteo jamaicensis*—red-tailed hawk

#### *Hummingbirds*

#### **TROCHILIDAE—HUMMINGBIRDS**

*Calypte anna*—Anna’s hummingbird

*Selasphorus rufus*—rufous hummingbird

#### *Jays, Magpies and Crows*

#### **CORVIDAE—CROWS AND JAYS**

*Aphelocoma californica*—California scrub-jay

*Corvus brachyrhynchos*—American crow

#### *Mockingbirds and Thrashers*

#### **MIMIDAE—MOCKINGBIRDS AND THRASHERS**

*Mimus polyglottos*—northern mockingbird

#### *New World Vultures*

#### **CATHARTIDAE—NEW WORLD VULTURES**

*Cathartes aura*—turkey vulture

*Pigeons and Doves*

**COLUMBIDAE—PIGEONS AND DOVES**

*Zenaida macroura*—mourning dove

- \* *Streptopelia decaocto*—Eurasian collared-dove

*Rails, Gallinules and Coots*

**RALLIDAE—RAILS, GALLINULES, and COOTS**

*Fulica americana*—American coot

*Shorebirds*

**RECURVIROSTRIDAE—STILTS and AVOCETS**

*Himantopus mexicanus*—black-necked stilt

**CHARADRIIDAE—LAPWINGS AND PLOVERS**

*Charadrius vociferus*—killdeer

*Starlings and Allies*

**STURNIDAE—STARLINGS**

- \* *Sturnus vulgaris*—European starling

*Terns and Gulls*

**LARIDAE—GULLS, TERNS, and SKIMMERS**

*Larus occidentalis*—western gull

*Waterfowl*

**ANATIDAE—DUCKS, GEESE, and SWANS**

*Anas platyrhynchos*—mallard

*Branta canadensis*—Canada goose

*Bucephala albeola*—bufflehead

*Cygnus columbianus*—Tundra swan

*Wood Warblers and Allies*

**PARULIDAE—WOOD-WARBLERS**

*Setophaga coronata*—yellow-rumped warbler

*Setophaga townsendi*—Townsend's warbler

*Leiothlypis celata*—orange-crowned warbler

*Woodpeckers*

**PICIDAE—WOODPECKERS AND ALLIES**

*Melanerpes formicivorus*—acorn woodpecker

*Wrentits*

**TIMALIIDAE—BABBLERS**

*Chamaea fasciata*—wrenit

*New World Sparrows*

**PASSERELLIDAE—NEW WORLD SPARROWS**

*Junco hyemalis*—dark-eyed junco

*Melospiza melodia*—song sparrow

*Melospiza crissalis*—California towhee

*Zonotrichia leucophrys*—white-crowned sparrow

Mammals

*Squirrels*

**SCIURIDAE—SQUIRRELS**

*Spermophilus (Otospermophilus) beecheyi*—California ground squirrel

\* signifies introduced (non-native) species

INTENTIONALLY LEFT BLANK

**APPENDIX D (CONFIDENTIAL) – CULTURAL RESOURCES**

Pursuant to CCR § 15120(d) the Cultural Resources Appendix is confidential and is only available to eligible individuals.

**APPENDIX E – PALEONTOLOGICAL RECORDS SEARCH THROUGH THE  
NATURAL HISTORY MUSEUM OF LOS ANGELES COUNTY**

Natural History Museum  
of Los Angeles County  
900 Exposition Boulevard  
Los Angeles, CA 90007

tel 213.763.DINO  
www.nhm.org

Research & Collections

e-mail: [paleorecords@nhm.org](mailto:paleorecords@nhm.org)

April 14, 2021

Dudek

Attn: Michael Williams

re: Paleontological resources for the Goleta Sanitary District Project (PN: 12642)

Dear Michael:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed development at the Goleta Sanitary District project area as outlined on the portion of the Goleta USGS topographic quadrangle map that you sent to me via e-mail on April 8, 2021. We do not have any fossil localities that lie directly within the proposed project area, but we do have fossil localities nearby from the same sedimentary deposits that occur in the proposed project area, either at the surface or at depth.

The following table shows the closest known localities in the collection of the Natural History Museum of Los Angeles County.

Locality Number	Location	Formation	Taxa	Depth
LACM VP 5018; LACM IP 36, 416, 6913, 6919	Seacliff about 1.5 miles long; south of Isla Vista between Goleta Point & Coal Oil Point	Unknown formation (Pleistocene; conglomerate & sandstone; locally coquinoid)	Fish (Osteichthyes); Invertebrates ( <i>Alia</i> , <i>Axinopsida</i> , <i>Barbarofusus</i> , <i>Caesia</i> , <i>Callianax</i> , <i>Callithaca</i> , <i>Calyptraea</i> , <i>Cancer</i> , <i>Cellaria</i> , <i>Crepidula</i> , <i>Cystiscidae</i> , <i>Decapoda</i> , <i>Glans</i> , <i>Hima</i> , <i>Leukoma</i> , <i>Lirobittium</i> , <i>Lottia</i> , <i>Lucinisca</i> , <i>Mactromeris</i> , <i>Macoma</i> , <i>Miodontiscus</i> , <i>Mitrella</i> , <i>Mytilidae</i> , <i>Nutricola</i> , <i>Ostrea</i> , <i>Paciocinebrina</i> , <i>Penitella</i> , <i>Platyodon</i> , <i>Saxidomas</i> , <i>Solen</i> , <i>Strongylocentrotus</i> , <i>Tellina</i> , <i>Tresus</i> , <i>Urosalpirix</i> )	Unknown
LACM VP 7954	El Capitan State Beach	Monterey Formation	Sperm whale (Physeteridae)	Surface
LACM IP 8057	Coast about 1/4 mile east of Goleta Landing	Pleistocene terrace	Invertebrate ( <i>Cryptonatica</i> )	Unknown

LACM IP 8056	Coast about 1 mile east of Goleta Landing	Unknown formation (Pleistocene conglomerate)	Invertebrates (unspecified)	Unknown
LACM VP 1013	Victoria St. Sand Pit. Packard's Hill*	Unknown formation (Miocene)	Cormorant ( <i>Phalacrocorax</i> )	Unknown
LACM VP 5610, 65174	Gaviota Beach	Monterey Formation	Flounder( <i>Paralichthys</i> ), bony fish (Eclipes, Thyrsocle), herring ( <i>Xyngreus</i> ); plants	Unknown

*VP, Vertebrate Paleontology; IP, Invertebrate Paleontology; bgs, below ground surface*

*\*Published in Howard, 1931; Condor; 33(1):30-31*

This records search covers only the records of the Natural History Museum of Los Angeles County (“NHMLA”). It is not intended as a paleontological assessment of the project area for the purposes of CEQA or NEPA. Potentially fossil-bearing units are present in the project area, either at the surface or in the subsurface. As such, NHMLA recommends that a full paleontological assessment of the project area be conducted by a paleontologist meeting Bureau of Land Management or Society of Vertebrate Paleontology standards.

Sincerely,



Alyssa Bell, Ph.D.  
Natural History Museum of Los Angeles County

enclosure: invoice



**APPENDIX F (CONFIDENTIAL) – NATIVE AMERICAN CULTURAL  
RESOURCES**

Pursuant to Public Resources Code § 21080.3. I (a) and Government Code § 65352.4 the Tribal Cultural Resources Appendix is confidential and is only available to eligible individuals.

## **APPENDIX G – MITIGATION MONITORING AND REPORTING PROGRAM**

Section 21081.6 of the PRC requires public agencies to adopt a Mitigation Monitoring and Reporting Program (MMRP) for changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment. An MMRP is required for the proposed Project, because the IS/MND identified potentially significant adverse impacts related to construction activity, and mitigation measures have been identified to mitigate these impacts. Adoption of the MMRP will occur along with approval of the Project.

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
<i>Air Quality</i>									
MM-AIR-1	<p>During construction, use water trucks or sprinkler systems to keep all areas of vehicle movement damp enough to prevent dust from leaving the site. At a minimum, this should include wetting down such areas in the late morning and after work is completed for the day. Increased watering frequency should be required whenever the wind speed exceeds 15 mph. Reclaimed water should be used whenever possible. However, reclaimed water should not be used in or around crops for human consumption.</p> <p>Minimize amount of disturbed area and reduce on site vehicle speeds to 15 mph or less.</p> <p>If importation, exportation and stockpiling of fill material is involved, soil stockpiled for more than two days shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.</p> <p>Gravel pads shall be installed at all access points to prevent tracking of mud onto public roads.</p> <p>After clearing, grading, earthmoving or excavation is completed, treat the disturbed area by watering, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur.</p> <p>The contractor or builder shall designate a person or persons to monitor the dust control program and to order increased watering, as necessary, to prevent transport of dust offsite. Their duties shall</p>	<p>Submittal of contractor dust mitigation plans</p> <p>Submittal of Construction Traffic Control Plan</p>	X	X		Goleta Sanitary District			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the Air Pollution Control District prior to grading/building permit issuance and/or map clearance.								
<b>Biological Resources</b>									
MM-BIO-1	Pre-construction Nesting Bird Surveys. If Project activities are proposed during the general avian breeding season of January 15 to September 15, the Project biologist shall conduct a preconstruction survey for active nests within 500 feet of the construction area and submit a letter report to the County of Santa Barbara (County) prior to the preconstruction meeting. If active nests are detected, clearing and construction within a minimum of 300 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. If an active raptor or rare, threatened, endangered, or species of special concern bird nest is found, clearing and construction within a minimum of 500 feet shall be postponed until the nest(s) is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting. The report submitted to the County shall include mitigation measures including, but not limited to, (1) worker environmental awareness training, (2) daily biological monitoring during construction activities, and (3) the locations of flags and/or stakes to provide the appropriate avoidance buffers. If no nesting birds are detected	The results of the preconstruction nesting bird survey will be submitted to the County prior to the preconstruction meeting to document compliance with applicable state and federal laws pertaining to the protection of native birds.	X			Goleta Sanitary District			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	<p>during the pre-construction survey, no mitigation is required.</p> <p>The Project biologist shall continue to perform site surveys during all construction activities to detect any nesting birds that may nest on the Project site after the preconstruction survey. Preconstruction clearance surveys shall be completed as required to comply with the federal Endangered Species Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, California Fish and Game Code, and/or County regulations. If the biological monitor determines that Project activities are disturbing or disrupting nesting activities, the monitor will make recommendations to County staff to reduce the noise or disturbance in the vicinity. This may include recommendations such as (1) turning off vehicle engines and other equipment whenever possible to reduce noise, (2) working in other areas until the young have fledged, and (3) stopping work until young are independent of their nests (Development Standard ECO-EGV-2C in County of Santa Barbara 2017).</p>								
MM-BIO-2	<p><b>Erosion and Sediment Control Plan (ESCP).</b> Due to the Project impact of less than 1 acre, the Applicant shall prepare an ESCP to minimize the potential for discharge of pollutants during construction activities. The ESCP shall be designed to minimize erosion during construction and shall be implemented for the duration of the grading period and until re-graded areas have been stabilized by structures, long-term erosion control measures, or permanent landscaping. The</p>	<p>BMPs inspection regularly and prior to storm events. Maintain BMPs in good condition at all times and</p>	X	X		Contractor			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	<p>ESCP shall include both structural and non-structural BMPs, including straw wattles around storm drains, silt fencing and or other physical controls to divert flows from exposed soil, spill prevention methods, and clean housekeeping methods for storing and refueling machinery. The ESCP shall using BMPs designed to stabilize the site, protect natural watercourses/creeks, prevent erosion, and convey stormwater runoff to existing drainage systems, keeping contaminants and sediments on site.</p> <p>As part of the ESCP, the contractor shall include specifications, installation requirements, and locations of appropriate BMPs to control sediment, coarse particles, concrete, and other materials exposed during construction. During construction activities, washing of concrete or equipment shall occur only in areas where polluted water and materials can be contained for subsequent removal from the site. Washing will not be allowed in locations where the tainted water could enter storm drains.</p> <p>There is a stormwater conveyance swale located in the grassy field, south of the staging area. A 50-foot buffer is required from this feature. The southern boundary of the staging area will need appropriate BMPs such as a silt fence to protect stormwater.</p> <p><i>Requirements and Timing</i></p> <p>The ESCP shall be submitted and approved prior to any ground disturbance. A County-approved ESCP is required in order to be issued a Grading Permit. ESCPs shall be developed by a professional knowledgeable in erosion and</p>	<p>monitor the site's stormwater measures prior to the start of construction and throughout the duration of construction to ensure they continue to function properly.</p>							

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	sediment control. It is recommended that a Certified Professional in Sediment and Erosion Control develop the ESCP. The responsible party shall designate an individual to be responsible for on-site installation, maintenance, and removal of ESCP measures. The ESCP requirements shall be implemented between November 1st and April 15th of each year, except pollution control measures, which shall be implemented year-round.								
<b>Cultural Resources</b>									
MM-CUL-1	<p><b>Data Recovery.</b> Based on the determination that despite efforts to avoid significant intact cultural deposits, the Proposed Project would impact cultural deposits of moderate density and therefore, the Project has a potential to adversely affect a unique archeological resource. As such, pursuant to CEQA, data recovery is required to be implemented according to following tasks:</p> <p>A qualified archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards, shall be retained to develop a data recovery program and research design prior to the data recovery efforts and shall make provision for adequately recovering the scientifically consequential information from and about the resource and shall be prepared and adopted prior to any excavation being undertaken (CEQA Guidelines Section 15126.4(b)(3)(A)). As such, the data recovery plan shall include specific levels of effort and methods to obtain a statistically representative sample of significant</p>	Submittal/ review of Data Recovery Research Design and Work Plan and Final Data Recovery Report to District	X			Goleta Sanitary District			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	<p>archaeological deposits as well as field and laboratory requirements to ensure proper treatment of all materials, including documentation of results and curation of the archaeological collection. This plan shall be submitted to the District for review prior to implementation. Specifically, the data recovery plan shall, at the least, include the standards, guidelines and performance criteria to ensure that the data recovery mitigation will be effective in “adequately recovering the scientifically consequential information from and about the historical resource” as stated in CEQA Guidelines Section 15126.4(b)(3)(C). Following are basic criteria, based on the California Office of Historic Preservation (OHP) Guidelines for Archaeological Research Designs (OHP 1991) from which a more detailed and comprehensive data recovery plan shall be formulated:</p> <ul style="list-style-type: none"> <li>➤ Professional Qualifications – the data recovery plan shall be designed by a qualified archaeologist meeting the Secretary of Interior’s Professional Qualifications for archaeology and has at least 2 years documented supervisory experience in the study of prehistoric archaeological resources of the region.</li> <li>➤ Research Design – the research design shall be developed to satisfy the requirement for public benefit that can be derived from the data recovery efforts. The design shall focus research on one or more important hypotheses that have been carefully constructed to address current data gaps, new models,</li> </ul>								



Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	<p>theories, investigative and conservation techniques as well as priority research areas identified by state or federal agencies (OHP 1991; National Park Service 2020). The design shall have the following goals pursuant to OHP guidelines: focus on important goals, be realistic and attainable, establish efficient methods to accomplish the goals, understandable, provide a thorough and well-organized argument, concise and flexible.</p> <ul style="list-style-type: none"> <li>➤ Fieldwork, Laboratory and Curation Methods – The data recovery field methods shall be designed to recover the entire portion of the cultural resource (sandstone-lined well) that will be impacted as a result of the ground disturbance and a statistically significant assemblage, of any surrounding resource deposit, sufficient to answer the research questions determined in the data recovery research design, that the site is potentially capable of addressing.</li> <li>➤ Report Elements – the data recovery efforts shall be thoroughly documented in a comprehensive report including the following core elements: theoretical orientation, cultural context, definition of the formulated hypotheses presented in the original research design, all field, laboratory and curation methods, results of research, implications of the results in light of current understanding and its potential to contribute to future research and understanding.</li> </ul>								

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
MM-CUL-2	<b>Construction Monitoring Treatment Plan.</b> Impacts to cultural resources shall be minimized through implementation of pre- and post-construction tasks. Tasks pertaining to cultural resources include the development of a Construction Monitoring Treatment Plan (Plan). The purpose of the Plan is to outline a program of treatment and mitigation in the case of an inadvertent discovery of cultural resources during ground-disturbing phases and to provide for the proper identification, evaluation, treatment, and protection of any cultural resources throughout the duration of the Project. This Plan shall define the process to be followed for the identification and management of cultural resources in the Project area during construction. Existence of and importance of adherence to this Plan shall be stated on all Project site plans intended for use by those conducting the ground disturbing activities.	Submittal/ review of Construction Monitoring Treatment Plan to District	X			Goleta Sanitary District			
MM-CUL-3	<b>Workers Environmental Awareness Program (WEAP) Training.</b> All construction personnel and monitors who are not trained archaeologists should be briefed regarding unanticipated discoveries prior to the start of ground disturbing activities. A basic presentation shall be prepared and presented by a qualified archaeologist and Native American representative to inform all personnel working on the Project about the archaeological sensitivity of the area. The purpose of the WEAP training is to provide specific details on the kinds of archaeological materials that may be identified during construction of the Project and explain the importance of and legal basis for the protection of significant archaeological	Submittal/ review of Workers Environmental Awareness Program (WEAP) Training to District/Contractor ensures all applicable personnel are trained.	X	X		Goleta Sanitary District/ Contractor			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	resources. Each worker shall also be instructed on the proper procedures to follow in the event that cultural resources or human remains are uncovered during ground-disturbing activities. These procedures include work curtailment or redirection, and the immediate contact of the archaeological monitor (if no monitor is present, senior archaeologist) and Native American monitor. Necessity of training attendance shall be stated on all Project site plans intended for use by those conducting the ground disturbing activities.								
MM-CUL-4	<b>Archaeological Monitoring.</b> A qualified archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards shall monitor all initial (first movement of soils within each ground disturbance location at complete horizontal and vertical extents) ground disturbances within the Proposed Project site. A qualified archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards for a Principal Investigator, shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue spot monitoring frequency) based on the observed potential for construction activities to encounter cultural deposits. The archaeological monitor shall be responsible for maintaining monitoring logs. Following the completion of construction, the qualified archaeologist shall provide an archaeological monitoring report to the District and the CCIC with the results of the cultural monitoring program.	Submittal/ review of monitoring logs and final report to District/Contractor to ensure archaeological monitors are onsite during all ground disturbing activities		X	X	Goleta Sanitary District/ Contractor			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
MM-CUL-5	<p><b>Inadvertent Discovery of Archaeological Resources.</b> In the event that archaeological resources (sites, features, or artifacts) are exposed during ground disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (14 CCR 15064.5(f); California PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary. If a discovery consists of possible human remains, the Santa Barbara County Coroner shall be contacted immediately as well as the qualified archaeologist and the District. If the Coroner determines that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission. (NAHC) who will provide the name and contact information for the Most Likely Descendent (MLD). Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a Tribal representative shall be retained to monitor all further subsurface disturbance in the area of</p>	<p>In event of inadvertent discovery of cultural resources, work shall stop, qualified archaeologist evaluates, Native American representatives consulted and Coroner immediately contacted of discovery of human remains</p>		X		Goleta Sanitary District/ Contractor			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	the find. In the event of the discovery of human remains, work in the area of discovery may only proceed after the District grants authorization.								
<b>Geology and Soils</b>									
MM-GEO-1	<b>Paleontological Resources Impact Mitigation Program and Paleontological Monitoring.</b> Prior to commencement of any grading activity on site, the applicant shall retain a qualified paleontologist per the Society of Vertebrate Paleontology (SVP) (2010) guidelines. The paleontologist shall prepare a Paleontological Resources Impact Mitigation Program (PRIMP) for the Proposed Project. The PRIMP shall be consistent with the SVP (2010) guidelines and outline requirements for preconstruction meeting attendance and worker environmental awareness training, where paleontological monitoring is required within the Project site based on construction plans and/or geotechnical reports, procedures for adequate paleontological monitoring and discoveries treatment, and paleontological methods (including sediment sampling for microinvertebrate and microvertebrate fossils), reporting, and collections management. The qualified paleontologist shall attend the preconstruction meeting and a qualified paleontological monitor shall be on site during initial rough grading and other significant ground-disturbing activities (including augering) in previously undisturbed, early Pleistocene to late Pliocene unnamed marine sedimentary units and Monterey Formation deposits. The qualified paleontological monitor shall also be on site during initial grading below a depth of five feet	Submittal/ review of PRIMP, monitoring logs and final report to District/Contractor to ensure paleontological monitors are present for WEAP training and onsite during initial grading depth of five feet below the ground surface in areas underlain by Holocene estuarine deposits.	X	X	X	Goleta Sanitary District/ Contractor			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	below the ground surface in areas underlain by Holocene estuarine deposits to determine if they are old enough to preserve scientifically significant paleontological resources. In the event that paleontological resources (e.g., fossils) are unearthed during grading, the paleontological monitor will temporarily halt and/or divert grading activity to allow recovery of paleontological resources. The area of discovery will be roped off with a 50-foot radius buffer. Once documentation and collection of the find is completed, the monitor will allow grading to recommence in the area of the find.								
<b>Tribal Cultural Resources</b>									
MM-TCR-1	<b>Workers Environmental Awareness Program.</b> All interested tribes that requested and participated in formal AB 52 consultation (referred to as “interested Tribe”), shall be notified by the Goleta Sanitary District of the time and location of the Worker Environmental Awareness Program (WEAP) training no later than 72 hours prior to its scheduled occurrence. GSD shall provide all interested consulting tribes access and opportunity to participate in the WEAP training.	District notify all interested tribes that requested and participated in formal AB 52 consultation of the time and location of the Worker Environmental Awareness Program (WEAP) training no later than 72 hours prior to	X	X		Goleta Sanitary District/ Contractor			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
		its scheduled occurrence/ Contractor to ensure Native American representatives are present for WEAP training							
MM-TCR-2	<b>Retention of a Native American Monitoring.</b> Prior to any ground disturbance activities, GSD shall contact any interested Tribes, with notification of the commencement of ground disturbing activities including archaeological excavations. The applicant shall make arrangements with the interested Tribe/s, to enter into a Native American Monitoring Agreement with the intent of securing a total of one Native American monitor to be present during initial ground disturbance occurring from 1 foot above native soils and below. Initial ground disturbance is defined as initial construction-related earthmoving of sediments from their place of deposition; this includes archaeological investigations. As it pertains to cultural resource (archaeological or Native American) monitoring, this definition excludes movement of sediments after they have been initially disturbed or displaced by current Project-related construction. The need for cultural resource monitoring (archaeological and Native American) will be determined by a qualified archaeological principal investigator, meeting the Secretary of the Interior’s Professional	District to notify all interested tribes of the commencement of ground disturbing activities including archaeological excavations and to enter Native American Monitoring Agreement / Contractor to ensure archaeological monitors are onsite during all ground disturbing activities	X	X		Goleta Sanitary District/ Contractor			

Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	<p>Qualification Standards for a Principal Investigator, in consultation with interested tribes who shall oversee and adjust monitoring efforts as needed (increase, decrease, or discontinue monitoring frequency) based on the observed potential for construction activities to encounter cultural deposits or material. More than one monitor may be required if multiple areas within the Project site are simultaneously exposed to initial ground disturbance as previously defined in these mitigation measures causing monitoring to be hindered by the distance of the simultaneous activities. The need for an additional monitor shall be made by the qualified archaeological principal investigator, meeting the Secretary of the Interior’s Professional Qualification Standards, in consultation with interested tribes. The Native American monitoring agreement(s) shall include, but not be limited to, outlining provisions and requirements for establishing on-site Native American monitoring for professional tribal monitors during initial ground disturbance as defined above. If multiple interested tribes request to be present during initial ground disturbing activities, each interested Tribe will be provided access to the Project site when initial ground disturbing activities are occurring and with a 48-hour notice. However, one interested Tribe at a time will be monetarily compensated for monitoring. If more than one interested Tribe would like to be retained for monetary compensation, a schedule will be created to equally share the Native American monitoring duties.</p>								



Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

MM-TCR-3	<p><b>Inadvertent Discovery of Tribal Cultural Resources.</b> In the event that tribal cultural resources (sites, features, or artifacts) are exposed during ground disturbing activities for the Project, all construction work occurring within 50 feet of the find should immediately stop until a qualified archaeologist, meeting the Secretary of the Interior’s Professional Qualification Standards, can evaluate the significance of the find, in consultation with interested Tribe/s as appropriate, and determine whether or not additional study is warranted. Depending upon the significance of the find under the California Environmental Quality Act (14 CCR 15064.5(f); California PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work, such as preparation of an archaeological treatment plan, testing, or data recovery, may be warranted. If the discovery is Native American in nature, consultation with and/or monitoring by a Tribal representative may be necessary. If a discovery consists of possible human remains, the Santa Barbara County Coroner shall be contacted immediately as well as the qualified archaeological Principal Investigator and GSD. If the Coroner determines that the remains are Native American, the Coroner shall contact the California Native American Heritage Commission. (NAHC) who will provide the name and contact information for the Most Likely Descendent (MLD). Treatment of the discovery shall be decided in consultation with the MLD provided by the NAHC. Additionally, a Tribal representative shall be retained to monitor all further subsurface disturbance in the area of the find. In the event of the discovery of human</p>	<p>In event of inadvertent discovery of tribal cultural resources, work shall stop, Native American representatives will be consulted and Coroner immediately contacted of discovery of human remains</p>		X		<p>Goleta Sanitary District/ Contractor</p>			
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Mitigated Negative Declaration for Biosolids and Energy Phase 1 Project  
 Goleta Sanitary District – Mitigation Monitoring and Reporting Program

Mitigation Measure No.	Mitigation Measure	Method of Verification	Timing of Verification			Responsible Party	Completed		Comments
			Pre-Const.	During Const.	Post-Const.		Initials	Date	
	remains, work in the area of discovery may only proceed after GSD grants authorization.								
<b>Utilities and Service Systems</b>									
MM UTIL-1	Solid Waste Diversion from Landfill. GSD will ensure that the construction contractor does not dispose of greater than 350 tons of solid waste in any California landfill. The contractor may exceed 350 tons only if they receive written permission from a landfill (for example if the landfill wants soils for barrier layers), or if they complete a solid waste mitigation plan which is approved by the Santa Barbara County Public Works Department (or another regional agency if authorized to do so). Since this is a requirement on the construction contractor, GSD will enforce this through a contract mechanism or other legally binding requirement.	District will enforce through a contract mechanism or other legally binding requirement. California Edison	X	X		Goleta Sanitary District/ Contractor			

Const. = construction

# **AGENDA ITEM #3**

**AGENDA ITEM: 3**

**MEETING DATE: May 2, 2022**

**I. NATURE OF ITEM**

Consideration of Capital Improvement Project Financing Proposal for Biosolids and Energy Strategic Plan Projects

**II. BACKGROUND INFORMATION**

The implementation of the Biosolids and Energy Strategic Plan (BESP) projects is included in the District's 2019 Action Plan and the 2020 Strategic Plan. Phase 1 of the BESP includes the construction of a new 550,000-gallon digester and a combined heat and power with a 160kW generator to convert biogas to electricity. The Phase 1 project is scheduled to begin construction in FY 2022-23. Completion of the Phase 1 project will improve the resiliency of our solids treatment process and reduce our ongoing energy costs.

Phases 2 and 3 of the BESP include the installation of a high-strength waste (fats, oils, grease, and slurried food waste) receiving station, along with a new centrifuge, thermal dryer, and solids dewatering building. Completion of BESP Phases 2 & 3 will increase biogas production and significantly reduce the costs of hauling and disposal of biosolids.

As originally envisioned in the BESP, the timing of Phases 2 and 3 were to follow several years after the completion of Phase 1 based on market conditions related to the cost of hauling and disposal of biosolids. However, recent increases in both construction costs and the costs associated with the hauling and disposal of biosolids have resulted in the consideration of combining Phases 2 and 3 into a single phase and accelerating completion of the project to avoid future construction cost increases and advance the reduction in operational costs.

On February 7, 2022, the Board authorized the execution of a professional services agreement with Hazen & Sawyer (Hazen) for the preliminary engineering design of the BESP Phase 2 project. This work is underway and is expected to be completed by the end of November, 2022. A preliminary cost estimate for the Phase 2 project is expected to be submitted in May, 2022.

The current total cost of both phases of the BESP project based on existing information is approximately \$37M. This amount exceeds the funding that is currently available in the District's reserve funds. Furthermore, it is likely that the portion the BESP project costs to be paid for by the contract entities pursuant to their capacity agreements exceeds their current funding levels. In order to accelerate completion of the BESP projects, additional revenue will be needed. This can be accomplished by various methods, including raising rates, interfund loans, issuing debt, or a combination of any/all options.

During the Board's annual planning session on March 23, 2022 the concept of financing the BESP project through a private placement loan was discussed, and staff was directed to bring this issue back for further consideration.

### **III. COMMENTS AND RECOMMENDATIONS**

In 2021 the District hired Julio Morales, Managing Director of Urban Futures Incorporated as the District's municipal financial advisor to advise on various financial management strategies. On April 18, 2022 Mr. Morales gave a presentation to the Board the possibility of financing the BESP projects through a private placement loan agreement. The Board directed staff to have Mr. Morales prepare a request for proposals (RFP) for a private placement loan as discussed to determine what loan interest rates and terms could be obtained.

An RFP was prepared and issued on April 20, 2022, with responses due on April 27, 2022. A total of 5 loan proposals were received and have been reviewed. A summary of the loan proposals submitted is attached to this report. The proposal with the best interest rate (2.982%) was submitted by Bank of America. This rate is approximately 25 basis points below market and is subsidized due to the type of energy projects included in the BESP. The Bank of America proposal is valid until May 6, 2022. If the Board is interested in pursuing a loan based on the Bank of America proposal, staff recommends that they authorize and sign the proposal and initiate the preparation of loan documents for Board consideration and approval at a future meeting. A draft financing schedule showing the steps to close the loan is attached to this report.

### **IV. REFERENCE MATERIALS**

Summary of Loan Proposals Received

Bank of America Loan Proposal

Draft Financing Schedule

**Goleta Sanitary District**  
**2022 Biosolids & Energy Strategic Plan Financing**  
**Summary of Proposals Received**  
**April 28, 2022**



	<u>Bank of America</u>	<u>Cal B&amp;T</u>	<u>Capital One</u>	<u>Community West Bank</u>	<u>Truist</u>
<b>Interest Rate:</b>	2.982%	3.84%*	3.59%	5.50%*	3.38%
		*rate fixed through 1/1/36 then will reset annually based on 1-year Federal Home Loan Bank Des Moines Regular Fixed Advanced Rate index plus 50 bps		*with optional rate reset at anytime of 10 Year CMT plus 2.50% with floor of 4.00%	
<b>Rate Lock Terms:</b>	Locked Through June 30, 2022	Locked for 30 days	Locked Through June 30, 2022	Locked through August 15, 2022	Locked Through June 30, 2022
<b>Prepayment Terms:</b>	Callable in whole 11th pmt date (1/1/28) at 102% 21st pmt date (1/1/33) at 101%	In whole or in part any time at par	Year 8 at 102% Year 9 at 101% Year 10 at par	Year 1 at 105% Year 2 at 104% Year 3 at 103% Year 4-5 at 102% Year 6-7 at 101%	In whole on any pmt date on or after 7/1/29 at par
<b>Costs(1):</b>					
Bank Counsel:	None	None	None	\$25,000	\$10,000
Escrow Fee:	None	\$500 acceptance fee \$2,000 annual administration fee	None	None	None
<b>Rate Covenant/ABT:</b>	1.25x	1.20x	1.35x	1.25x	1.20x
<b>Proposal Expiration:</b>	May 6, 2022	Not Provided	May 3, 2022 (Tracked by a collar until locked)	May 13, 2022	Not Provided

(1) Additionally, bond counsel, municipal advisor, placement agent, and miscellaneous costs apply.

In addition, the following banks declined to submit a bid:			<b>Estimated Closing Date: June 30, 2022</b> <b>Approximate Principal Amount : \$20,150,000</b> <b>Final Maturity: 7/1/2042</b> <b>Average Life: 11.40 Years</b>
Banner Bank	JPMorgan Chase	Umpqua Bank	
Co Bank	Municipal Finance Corporation	Webster Bank	
First Foundation	Pacific Western Bank	Western Alliance Bank	
Five Star Bank	Signature Bank		



Michael C. Brunzman  
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April 28, 2022

VIA ELECTRONIC MAIL

Goleta Sanitary District  
In Care of Jeff Land and Nolan Blair, Brandis Tallman  
1 William Moffett Place  
Goleta, CA 93117

Cc: Brad Koster, BofA Global Leasing – Energy Services

**Re: Goleta Sanitary District, approximately \$20,150,000 total project cost, Non-Bank Qualified Tax-Exempt Installment Sale Agreement Financing**

Banc of America Public Capital Corp and its affiliates ("BAPCC") is pleased to submit to Goleta Sanitary District (the "District") the Non-Bank Qualified Tax-Exempt Installment Sale Agreement Financing proposal (the *Proposed Transaction*) as described in the attached Summary of Terms and Conditions (the *Term Sheet*). Please review the Term Sheet and contact me if you have any questions.

This letter and the Term Sheet (collectively, the *Proposal* or the *Proposal Letter*) include only a brief description of the principal terms of the Proposed Transaction, and are intended for discussion purposes only. Please understand that this Proposal is not a commitment or offer to purchase, and does not create any obligation for BAPCC. BAPCC will not be responsible or liable for any damages, consequential or otherwise, that may be incurred or alleged by any person or entity as a result of this Proposal Letter. BAPCC will notify you in writing of its decision to proceed with the Proposed Transaction after completing its review and analysis.

This Proposal must be accepted on or before May 6, 2022 in order for the BAPCC to proceed with its consideration of the Proposed Transaction. To accept this Proposal, please sign the enclosed copy of this Proposal Letter and return it to my attention at the following email address: [michael.brunzman@bofa.com](mailto:michael.brunzman@bofa.com).

Thank you for allowing us the opportunity to prepare this Proposal for Goleta Sanitary District.

Sincerely yours,

**Banc of America Public Capital Corp**

*Michael C. Brunzman*

By: Michael C. Brunzman

Title: Senior Vice President

The undersigned, by its authorized representative below, accepts the Proposal contingent upon proper approval at a meeting of its Governing Board. The undersigned agrees to furnish BAPCC, its successors and assigns, any information relating to the business or financial condition of the District or its affiliates, and authorizes the BAPCC, Bank of America, N.A. and their affiliates to disclose to, discuss with and distribute such information (and any information they may already have) to any other affiliates or proposed assignees or successors of BAPCC.

**Goleta Sanitary District**

By: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

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Goleta Sanitary District  
In Care of Jeff Land and Nolan Blair, Brandis Tallman  
1 William Moffett Place  
Goleta, CA 93117

Cc: Brad Koster, BofA Global Leasing – Energy Services

RE: **Goleta Sanitary District** Financing Proposal

Banc of America Public Capital Corp is pleased to submit the following financing proposal for the Goleta Sanitary District to help implement its Biosolids and Energy Strategic Plan (“BESP”). No municipal financial products or municipal securities have been included in the following proposal.

**I. Issuer**                      Goleta Sanitary District

**II. Lender Information**

Lender Name:              Banc of America Public Capital Corp (“BAPCC”)  
Address:                      312 Walnut Street, Suite 2200  
                                        Cincinnati, OH 45202  
Contact:                      Michael Brunsman  
Telephone:                  513-929-5102  
Email:                          michael.brunsmann@bofa.com

Background: BAPCC offers unique financing features and qualifications that can be leveraged on behalf of the District to complete this private placement transaction at a low interest cost and in a smooth and efficient manner. These features and qualifications include:

1. **Taxable & Tax-Exempt Private Placement Experience:** BAPCC is a leading provider of private placement capital to the state government, municipal local government, K-12, housing authority, and higher education tax-exempt markets. Our teams are highly experienced in documenting and closing tax-exempt and taxable private placement transactions in California, such as the subject of this bid.
2. **Energy Services Focus:** BAPCC’s Energy Services group is a leading provider of financial solutions for energy efficiency, renewable energy, and energy generation equipment and assets; and as such we have experience in working with energy services companies. Bank of America is committed to improving the environment and has increased its current Environmental Business Initiative to \$1 trillion. Since 2007, the Bank’s Environmental Business Initiative has deployed more than \$158 billion in financing to low-carbon and sustainable business activities across the globe.

3. **Financial Strength:** Information regarding Bank of America’s financial condition can be found in the Annual Report on our website, [www.bankofamerica.com](http://www.bankofamerica.com).

### III. Lease Structure

<p><b>Purpose</b></p>	<p>Goleta Sanitary District (the “District” or “Issuer”) is implementing their BESP. The BESP includes the construction of a new 550,000-gallon digester with a 160kW generator to convert biogas to electricity, the installation of a high strength waste receiving station, along with a new centrifuge, thermal dryer, and a solids dewatering building.</p>
<p><b>Structure</b></p>	<p>This transaction will be structured as a Non-Bank Qualified Tax-Exempt Installment Sale Agreement (the “Agreement”) between the Issuer and the Lender. The obligation to make Rental Payments under the Agreement shall be a firm-term, hell-or-high-water obligation of the Issuer payable from Net Revenues of the District on a parity with any other outstanding validly issued parity obligations issued (collectively, the “Existing Parity Bonds”). It is Lender’s understanding that there are no Existing Parity Bonds currently.</p> <p>Regardless of the status of installation or performance of the financed Equipment, the Issuer’s obligation to make payments commence on that certain date as set forth in the Agreement. Legal title to the financed equipment shall be vested in the Issuer. The Agreement will be a net financial contract of the Issuer, and all expenses (including, but not limited to, insurance, maintenance, and taxes) will be for the account of the Issuer.</p>
<p><b>Security</b></p>	<p>Payments under the Agreement will be payable exclusively from the Net Revenues of the District (as will be defined in the Agreement). The District will pledge Net Revenues necessary to pay the Rental Payments to the Agreement and the pledge of Net Revenues shall be on a parity with all Existing Parity Bonds and any future obligations permitted to be issued on a parity with Existing Parity Bonds (collectively, “Parity Bonds”).</p> <p>The District will grant to the Lender a security interest in the financed Equipment and Lender’s security interest in the financed Equipment will be evidenced by filing a UCC-1 Financing Statement (personal property) with respect to the Equipment. Prior to closing, the Lessee will be required to provide legal descriptions (as applicable) for the property locations at which the financed Equipment will be installed in order to enable the Lessor to record the fixture filings in the appropriate recording offices. This security interest in the financed equipment may be subordinated to future Parity Bonds of the District.</p>

<b>Rate Covenant:</b>	(a) the District will covenant to set its rates so that the Issuer's Net Revenues will, at a minimum, equal 1.25x of all O&M costs, all the debt service and other amounts due under the Agreement, all existing and future Net Revenue-backed obligations, and all existing and future parity and/or subordinate lien obligations and their related indentures and instruments and all other obligations payable from Net Revenues issued by the Lessee.
<b>No Senior Debt:</b>	The District shall covenant that no additional bonds or other obligations shall be issued or incurred having any priority in payment of principal or interest out of the Net Revenues that is senior in any way to the Parity Bonds or the Agreement.
<b>Additional Parity Debt:</b>	Issuer may issue additional obligations secured by Net Revenues on a parity with the Agreement upon meeting certain tests as outlined in the Agreement. Specifically, it will require that Issuer's Net Revenues for the prior 12 months must at least cover all maximum annual debt service on all obligations secured by or payable from Net Revenues and any additional maximum annual debt service resulting from the new parity lien obligation by 1.25x.
<b>Additional Subordinate Debt:</b>	Issuer may issue additional obligations secured by Net Revenues on a basis subordinate to the Agreement upon meeting certain tests as outlined in the Agreement. Specifically, it will require that Issuer's Net Revenues for the prior 12 months must at least cover all maximum annual debt service on the Agreement, all Parity Bonds, all subordinate lien debt service and other obligations secured by or payable from Net Revenues and any additional debt service resulting from the new subordinate lien obligation by 1.00x.
<b>Proceeds</b>	Approximately \$20,150,000
<b>Term</b>	20 years
<b>Payments</b>	Payments similar to those shown on the attached amortization schedules.
<b>Optional Prepayment</b>	Beginning with the 11 <sup>th</sup> payment date and on each payment date through the 20 <sup>th</sup> payment date, District will have the option to prepay its obligations under the Agreement in whole only with a prepayment premium of 102% of the outstanding principal balance.  Beginning with the 21 <sup>st</sup> payment date and on each payment date through maturity, District will have the option to prepay its obligations under the

	Agreement in whole only with a prepayment premium of 101% of the outstanding principal balance.										
<b>Interest Rate</b>	<p>20 years) 2.982%, locked through June 30, 2022</p> <p>The calculation for the Interest Rate for each option above is:</p> <p><i>11-Year Bloomberg Treasury SWAP Rate* X 79% + Applicable Spread Below:</i></p> <table border="1"> <thead> <tr> <th>Average Life Swap Term</th> <th>Schedule Index Rate*</th> <th>x 79%</th> <th>Spread</th> <th>Indicative Interest Rate</th> </tr> </thead> <tbody> <tr> <td>11</td> <td>2.80%</td> <td>2.21%</td> <td>0.770%</td> <td>2.982%</td> </tr> </tbody> </table> <p><i>Rates as of April 27, 2022</i></p> <p>LIBOR-Based Swap Succession: In the event the Libor-based swap index ceases (a) to be determined and made available through the Bloomberg Terminal, (b) to be a representative index for approximating movements in Lender’s costs of funding fixed-rate transactions, or (c) to be the generally accepted swap index in the marketplace, Lender may in its discretion use a replacement swap index applicable to U.S. Dollar collateralized funding that is generally accepted in the interbank credit marketplace as a comparable substitute for the LIBOR-based swap.</p>	Average Life Swap Term	Schedule Index Rate*	x 79%	Spread	Indicative Interest Rate	11	2.80%	2.21%	0.770%	2.982%
Average Life Swap Term	Schedule Index Rate*	x 79%	Spread	Indicative Interest Rate							
11	2.80%	2.21%	0.770%	2.982%							
<b>Rate Expiry</b>	<p><u>If this Proposal is signed and returned to Lender on or prior to May 6, 2022, Lender will hold the Interest Rate through June 30, 2022.</u></p> <p>If closing of the transaction occurs after such rate lock expiration, the respective Interest Rate for the transaction is subject to repricing <i>at the discretion of Lender</i> seven (7) business days prior to the scheduled closing date in accordance with the selected option formula above. In no event will the Bloomberg Treasury Swap Rate used to reset the Interest Rate be below the Swap Rate in each respective pricing grid above.</p> <p>IF ISSUER ASKS LENDER TO LOCK THE RESPECTIVE INTEREST RATE ABOVE FOR FUNDING, ISSUER AGREES NOT TO SEEK FUNDING FOR THE PROJECT WITH ANOTHER LENDER FOR A PERIOD OF SIX MONTHS AS A MEANS TO CIRCUMVENT THE RATE THAT BORROWER HAS ASKED LENDER TO HOLD.</p>										

	PLEASE NOTE THAT THE PRICING AND RATE ABOVE ARE BASED ON THE AVERAGE LIFE OF THE ATTACHED DRAFT AMORTIZATION SCHEDULES. TO THE EXTENT THAT THE AVERAGE LIFE OF THE FINAL SELECTED AMORTIZATION SCHEDULE CHANGES FROM THE ATTACHED, THE RESPECTIVE RATE ABOVE IS SUBJECT TO MODIFICATION BY LENDER TO ACCOUNT FOR ANY LENGTHENING OF THE AVERAGE LIFE OF THE FINAL SCHEDULE.
<b>Closing Costs</b>	Lender does not charge any closing costs or fees. The Issuer will be responsible for paying its costs, including delivery of a validity and tax opinion from Issuer's Bond Counsel and any CDIAC Reporting Fee.
<b>Escrow Account Terms</b>	At closing, proceeds from the Agreement will be deposited into an Escrow Account established pursuant to an Escrow and Account Control Agreement (the "Escrow") by and among the District, the Lender and the Escrow Agent. The Escrow Agent will be selected by the District, subject to the Lender's approval. The Lender has an arrangement with Wilmington Trust, under which escrow agent services for these types of transactions are provided at no charge to District. During the installation period, the District will requisition funds in the manner outlined in the Escrow. No funds will be disbursed without the written approval of the District and approval of the Lender. The District will direct the investments in the Escrow Account and all interest earnings will accrue to the District's benefit.
<b>Documents</b>	Documents shall be prepared by the Lender's Counsel and will include all documents, certificates and opinions as are reasonably necessary to evidence and carry out the transaction. All documents must be acceptable to all parties.
<b>Payment &amp; Performance Bonds</b>	The Lender requires to be listed as dual obligee on the payment and performance bonds provided by the project subcontractors utilized from the District. No draws from Escrow will be permitted until such bonds are in place.
<b>Credit Approval</b>	This proposal is an indication of interest in the transaction, and not a commitment to provide financing by the Lender. Consummation of this transaction is subject to credit approval by the Lender and execution and delivery of documentation acceptable to all parties. All fundings are subject to no material adverse change in the financial condition of the District from the time of credit approval.
<b>Closing Date</b>	On or before June 30, 2022. Sample amortization utilizes a closing date of June 30, 2022.

<b>Assignment</b>	<p>The Lender shall be entitled to assign its right, title and interest or any part thereof in the Agreement and Equipment, on a private placement basis to one or more assignees that are either an “accredited investor” within the meaning of Regulation D under the Securities Act of 1933, or a qualified institutional buyer within the meaning of Rule 144A. In addition, the Lender shall be entitled to assign its right, title and interest or any part thereof in the Agreement to a trustee for the purpose of issuing certificates of participation or other forms of certificates evidencing an undivided interest in such Agreement, provided such certificates are sold only on a private placement basis (and not pursuant to any “public offering”) to a purchaser(s) who represent that (i) such purchaser has sufficient knowledge and experience in financial and business matters to be able to evaluate the risks and merits of the investment (ii) such purchaser understands neither the Agreement or certificates will be registered under the Securities Act of 1933, (iii) such purchaser is either an “accredited investor” within the meaning of Regulation D under the Securities Act of 1933, or a qualified institutional buyer within the meaning of Rule 144A, and (iv) that it is the intention of such purchaser to acquire such certificates (A) for investment for its own account or (B) for resale in a transaction exempt from registration under the Securities Act of 1933. At any time, the Lender may sell, assign or encumber all or any part of its right title and interest in the Agreement; however, in no event shall the Lender assign this Agreement as a public offer of participation. The District consents to a private placement transaction within the meaning of applicable federal securities laws.</p>
<b>District’s Responsibilities</b>	<p>All responsibilities imposed by the ownership or possession of the Equipment including, but not limited to, taxes, insurance and equipment maintenance, shall be borne by the District.</p>
<b>USA Patriot Act Compliance</b>	<p>All financial institutions are required by Federal Law to obtain, verify and record information that identifies each customer who opens an account with us. When you open an account with us, we will ask you for your name, address and other information that will allow us to identify you, such as documents evidencing legal status and formation, taxpayer identification number and date of birth (if applicable).</p>
<b>Market Disruption</b>	<p>Notwithstanding anything contained herein to the contrary, in the event any material change shall occur in the financial markets after the date of this Proposal Letter, including but not limited to any governmental action or other event which materially adversely affects the extension of credit by banks, leasing companies or other lending institutions, the Lessor may modify the indicative pricing described above.</p>

### III. Other Information

Capitalized terms used but not defined herein shall have the meaning given such terms in the transaction documents (i.e. the Agreement, Equipment, Escrow).

This proposal letter and the Term Sheet include only a brief description of the principal terms of the Proposed Transaction and do not purport to summarize all of the conditions, covenants, representations, warranties and other provisions that would be contained in definitive documentation for the transaction contemplated hereby. The Lessor will not be responsible or liable for any damages, consequential or otherwise, that may be incurred or alleged by any person or entity, including the District or any subcontractor as a result of this Proposal Letter.

Thank you for the opportunity to provide this proposal. If you have any questions or would like to discuss this proposal in further detail, please let us know.

Sincerely yours,

**Banc of America Public Capital Corp**

*Michael C. Brunzman*

By: Michael C. Brunzman

Title: Senior Vice President

#### STANDARD DISCLOSURES AND DISCLAIMERS

The transaction described in this document is an arm's length, commercial transaction between you and Banc of America Public Capital Corp ("BAPCC") in which: (i) BAPCC is acting solely as a principal (*i.e.*, as a lender or assignee) and for its own interest; (ii) BAPCC is not acting as a municipal advisor or financial advisor to you; (iii) BAPCC has no fiduciary duty pursuant to Section 15B of the Securities Exchange Act of 1934 to you with respect to this transaction and the discussions, undertakings and procedures leading thereto (irrespective of whether BAPCC or any of its affiliates has provided other services or is currently providing other services to you on other matters); (iv) the only obligations BAPCC has to you with respect to this transaction are set forth in the definitive transaction agreements between us; and (v) BAPCC is not recommending that you take an action with respect to the transaction described in this document, and before taking any action with respect to the this transaction, you should discuss the information contained herein with your own legal, accounting, tax, financial and other advisors, as you deem appropriate. If you would like a municipal advisor in this transaction that has legal fiduciary duties to you, you are free to engage a municipal advisor to serve in that capacity.

## STATEMENT FOR PROPOSALS SUBMITTED UNDER RFPs

This proposal is submitted in response to your Request for Proposal. The contents of this proposal and any subsequent discussions between us, including any and all information, recommendations, opinions, indicative pricing, quotations and analysis with respect to any municipal financial product or issuance of municipal securities, are provided to you in reliance upon the exemption provided for responses to requests for proposals or qualifications under the municipal advisor rules (the “Rules”) of the Securities and Exchange Commission (240 CFR 15Ba1-1 *et seq.*).

The Staff of the SEC’s Office of Municipal Securities has issued guidance which provides that, in order for a request for proposals to be consistent with this exemption, it must (a) identify a particular objective, (b) be open for not more than a reasonable period of time (up to six months being generally considered as reasonable), and (c) involve a competitive process (such as by being provided to at least three reasonably competitive market participants) or by being publicly posted to your official website. In submitting this proposal, we have relied upon your compliance with this guidance.

In submitting this proposal, we are not undertaking to act as a “municipal advisor” to you or any other person within the meaning of the Rules. In connection with this proposal and the transactions described herein, we are not subject to, and we hereby disclaim, any fiduciary duty to you or to any other person. We understand that you will consult with and rely on the advice of your own municipal, financial, tax, legal and other advisors as and to the extent you deem necessary in connection with your evaluation of this proposal and the transactions described herein.



**GOLETA SANITARY DISTRICT  
2022 Private Placement  
Preliminary Financing Schedule**

April							May							June							July						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
					1	2	1	2	3	4	5	6	7				1	2	3	4						1	2
3	4	5	6	7	8	9	8	9	10	11	12	13	14	5	6	7	8	9	10	11	3	4	5	6	7	8	9
10	11	12	13	14	15	16	15	16	17	18	19	20	21	12	13	14	15	16	17	18	10	11	12	13	14	15	16
17	18	19	20	21	22	23	22	23	24	25	26	27	28	19	20	21	22	23	24	25	17	18	19	20	21	22	23
24	25	26	27	28	29	30	29	30	31					26	27	28	29	30			24	25	26	27	28	29	30
																					31						

Board Meetings  
Holiday

Board Meetings – **1<sup>st</sup> & 3<sup>rd</sup> Monday** of each month  
Agenda items must be submitted **7 days** prior to meeting

Date	Activity	Responsibility
April 29 <sup>th</sup>	Receive bids	Oppenheimer
May 2 <sup>nd</sup>	Summary of bids	UFI / Oppenheimer
May 2 <sup>nd</sup>	Board Meeting (preliminary report / summary of bids)	District
May 11 <sup>th</sup>	Distribute 1 <sup>st</sup> draft of legal documents	Kutak
May 16 <sup>th</sup>	Board Approval to proceed with financing and provide final legal documents for approval in June	District
May 23 <sup>rd</sup>	Conference call to review documents	All
May 31 <sup>st</sup>	Staff report due	UFI
June 6 <sup>th</sup>	Board approval of legal documents	District
June 20 <sup>th</sup>	Closing / Receive bond proceeds	All

# **AGENDA ITEM #4**

**AGENDA ITEM: 4**

**MEETING DATE: May 2, 2022**

**I. NATURE OF ITEM**

Consideration of Draft Climate Adaptation Plan

**II. BACKGROUND INFORMATION**

The District's Governing Board held its Annual Planning meeting on March 23, 2022 and reviewed the 2021 Action Plan. One of the goals of the Plan under the Environmental Stewardship and Resiliency Planning category was to develop a Climate Adaptation Plan (CAP).

On May 17, 2021, the District approved a professional services agreement with Environmental Science Associates, Inc. (ESA) to develop CAP identifying potential sea-level rise impacts to the District's facilities including the Firestone Lift Station, outfall, and the treatment plant, and to recommend mitigation measures to protect the infrastructure from sea level rise with respect to timing, strategies, and costs, using much of the work done by other agencies in the recent past.

Phases of CAP include development of: 1) Sea-level Rise Scenarios, 2) Hazards Analysis, 3) Asset Inventory, 4) Vulnerability Assessment, and 5) an Adaptation Plan Recommendation.

The consultants issued a technical memorandum on July 6, 2021 on Sea-level Rise Scenarios for the District's consideration. ESA produced the Vulnerability Assessment Report on October 15, 2021. The draft Climate Adaptation Report was received on April 6, 2022 from ESA. Three scenarios were used to evaluate the District's capability to withstand sea level rise models and the associated threats to District assets: existing conditions (no sea level rise), 2.5 foot sea level rise, and 6.6 foot sea level rise over the next 50+ years.

Two risk aversion levels were also used, an extreme risk aversion and a medium-high risk aversion. Extreme risk aversion calculated impacts of a 2.5-foot sea level rise by 2050 and a 6.6-foot sea level rise by 2080. The medium-high risk aversion used the year 2060 for the 2.5-foot sea level rise and the year 2100 for the 6.6-foot sea level rise. For the District's purposes the medium to high risk level was chosen, as recommended by the State.

The report also identified potential flooding hazards from three sources: coastal, fluvial, and estuarine. The report makes recommendations for adaptations which can be made by the District in the future to reduce vulnerabilities and improve resilience. Consequences of possible damage to each asset from each type of

possible sea level rise flooding is detailed with adaptive capacity from low to high. Adaptation measures for three District assets, and their associated costs are included in the study. The assets are the Recycled Water Underground Storage Tank and Chlorine Contact Basin, the Firestone Road Pump Station, and the bank along San Pedro Creek near the Stabilization Ponds. Other assets are identified for future study to determine possible adaptation measures.

### **III. COMMENTS AND RECOMMENDATIONS**

While completion of a CAP identifies potential solutions to the future impacts associated with sea level rise, the timing, frequency and severity of the impacts may vary from the estimates included in the CAP. As such, staff will continue to monitor the impacts associated with sea level rise and will implement the recommended mitigation strategies as needed. Staff recommends that the Board accept the draft CAP and direct staff to post it publicly, where appropriate.

### **IV. REFERENCE MATERIALS**

Environmental Science Associates, Inc. Draft Climate Adaptation Study Report  
Dated April 6, 2022

DRAFT REPORT

# GOLETA SANITARY DISTRICT

## Climate Adaptation Plan

Prepared for  
Goleta Sanitary District

April 8, 2022



DRAFT REPORT

# GOLETA SANITARY DISTRICT

## Climate Adaptation Plan

Prepared for  
Goleta Sanitary District

April 8, 2022

[enter additional text if necessary]

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# CHAPTER 1

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## Introduction

The Goleta Sanitary District (District) has undertaken this study to develop a Climate Adaptation Plan for its wastewater collection, treatment, recovery and discharge facilities. The purpose of the Climate Adaptation Plan is to assess the vulnerability of the District’s assets to coastal hazards with future projected sea level rise due to climate change.<sup>1</sup> The Climate Adaptation Plan will identify adaptation strategies that the District can take in the future to reduce the District’s potential vulnerabilities, thereby improving the District’s resiliency to sea level rise. The following sections summarize the study purpose and background on the District and surrounding Goleta Slough.

### 1.1 Purpose

The purpose of the Climate Adaptation Plan is to assess the vulnerability of the District’s assets to future projected sea level rise with climate change and identify adaptation strategies that the District can take in the future to reduce the District’s potential vulnerabilities, thereby improving the District’s resiliency to sea level rise. This report documents the District’s vulnerabilities to coastal, fluvial and estuarine hazards with sea level rise. This report also considers potential adaptation strategies that the District could implement in the future to reduce vulnerability and improve resiliency to sea level rise.

### 1.2 Background

The District’s Water Resource Recovery Facility (WRRF) is located approximately 2,300 feet from the Pacific Ocean shoreline in Goleta, California and is situated on the northern face of Mescalitan Island within Goleta Slough (Figure 1). The watershed that drains into Goleta Slough is about 45 square miles and includes the drainages of seven creeks: Atascadero, Carneros, Las Vegas, Maria Ygnacia, San Jose, San Pedro and Tecolotito Creeks. Goleta Slough has experienced several large flood events over the past century, including major floods which forced the closure of the Santa Barbara Airport in 1969 and 1995. As the climate changes and sea levels rise, the risk of flooding and other adverse impacts to District infrastructure due to elevated water levels within Goleta Slough will increase.

The District’s wastewater system may be subjected to flooding by four mechanisms:

- Existing and future chronic coastal erosion (beach and bluff), tidal inundation and groundwater emergence associated with sea level rise
- Existing and future extreme coastal storm event flooding and wave run-up impacts associated with sea level rise

---

<sup>1</sup> This report focuses on sea level rise as a primary climate stressor for the District and does not consider other potential climate stressors.

- Existing (and future) fluvial flooding in Goleta Slough associated with extreme rainfall-runoff events that flood the Slough
- Estuarine flooding caused by elevated water levels in Goleta Slough associated with moderate fluvial flows into the Slough in combination with a closed and elevated Goleta Slough mouth at Goleta Beach



SOURCE: ESA, ESRI

Goleta Sanitary District Climate Adaptation Plan

**Figure 1**  
Project Location and Vicinity Map

### 1.3.1 Goleta Slough Management

This section summarizes the hydrology of Goleta Slough and its management by others in order to provide context of flooding and adaptation in the Slough as documented in the *Goleta Slough Area Sea Level Rise and Management Plan* (ESA 2015b). Goleta Slough has been greatly reduced in size and function over the past two centuries through a combination of natural processes, land use changes, and other human activities. The 2015 management plan comprises an update to previous Slough management plans and includes new detailed information and analysis of future conditions projected to occur as the climate changes over the next century.

Goleta Slough is a lagoon (aka coastal estuary) that has formed behind Goleta Beach and is typically perched above ocean water levels. Goleta Beach and the lagoon mouth channel that forms across the beach control the water surface elevation in the Slough. The closure, opening, and elevation of the mouth changes throughout the year: in summer, the mouth of the Slough is closed by sand that is built up by waves; in winter, larger rain events that fill the Slough enough

to overtop the beach, which causes the mouth channel to breach the beach berm and scour the mouth channel. The Slough can remain open to ocean tides for a period of time after each breach until sufficient wave energy builds the beach berm up again.

In recent years the lagoon has often been mechanically breached by excavating through the beach berm in order to open the lagoon mouth during extended periods of closure. Following these mechanical breaches, the lagoon eventually returns to closed conditions. This most often occurs during the following dry season, with the timing of mouth closure varying depending on wave conditions and the amount of streamflow entering the lagoon from the watershed. Managed breaches had historically been conducted by the Santa Barbara Flood Control District with the presumptive goal of reducing flood risk and improving water quality (ESA 2015b).

In 2013, the Flood Control District decided not to continue managed breaching of the lagoon. This decision was attributed to the high expected costs of the biological studies that would be necessary to renew the permits. A limited number of managed breaches have occurred since 2013 under emergency permits strictly to prevent flooding during major rain events; meanwhile the City of Santa Barbara has commissioned studies to evaluate the impact of managed breaches on the local ecology and to plan for the long-term management of the Goleta Slough estuary (ESA 2015b).

The following are the Goleta Slough Area Sea Level Rise and Management Plan’s key findings related to sea level rise at Goleta Slough:

- Recognize that the future management of the Slough inlet will have a very significant impact on water levels and have a large effect on the distribution of habitats and species within the Slough Ecosystem.
- Manage the Goleta Slough inlet to maintain tidal circulation, water quality, and diversity and resilience of species and habitats.
- Establish provisions for the long-term management of the Slough mouth, including ongoing monitoring with adaptive management to achieve well-defined goals and to allow for compliance with future permitting requirements.
- View sediment as a resource that can be used within the Slough to increase the resiliency of the habitats as sea level rises.
- Deposition of sediment from the watershed onto tidal marshlands and flats within the Slough should be encouraged to maximize marsh accretion relative to sea level rise.
- Improve ecological linkages, increase resiliency and reduce habitat fragmentation by restoring tidal action to diked areas and provide more adjacent upland habitat for transgression.
- Identify and pursue priority projects to protect, enhance and/or expand key habitat areas, taking advantage of existing open space areas that are already near the typical elevation range for these habitats.
- Identify and pursue priority projects to protect the most vulnerable infrastructure so as to increase the threshold water surface elevation at which flood damage becomes likely.

- Require the consideration of future sea level rise and Slough inlet management practices when determining flood risk and identifying flood hazard areas.
- Minimize the construction of new vulnerable infrastructure within flood hazard areas.

Management actions taken by others to manage Goleta Slough has the potential to impact and/or benefit low lying District assets. Thus, local coordination will be important as asset managers around Goleta Slough plan for future sea level rise.

# CHAPTER 2

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## Sea Level Rise Scenarios

The primary climate driver for this study is sea level rise. This chapter documents the planning horizons (timeframes) and sea level rise scenarios evaluated for the Goleta Sanitary District Climate Adaptation Plan. Section 2.1 summarizes current state guidance on sea level rise. Section 2.2 presents the planning horizons and sea level rise scenarios selected for the project.

### 2.1 California State Sea-level Rise Policy Guidance

In 2018, the California Ocean Protection Council (OPC) updated the *State of California Sea Level Rise Guidance* (CA OPC 2018), which includes projections for sea level rise at various locations along the coast of California through 2150. The guidance is based on the science update prepared by the OPC and the California Natural Resources Agency, in collaboration with the Governor’s Office of Planning and Research, the California Energy Commission, and the California Ocean Science Trust (Griggs et al. 2017). The CA OPC Guidance presents different sea level rise values based on two global greenhouse gas emissions scenarios:

**High Emissions Scenario** – This scenario assumes a future where there are no significant local or global efforts to limit or reduce emissions. This scenario assumes high population and relatively slow income growth with modest rates of technological change and energy intensity improvements, leading in the long-term to high energy demand and GHG emissions.

**Low Emissions Scenario** – This scenario assumes more aggressive emissions reduction actions corresponding to the aspirational goals of the 2015 Paris Agreement, which calls for limiting mean global warming to less than 2 degrees Celsius and achieving net-zero greenhouse gas emissions in the second half of the century. This scenario is considered challenging to achieve and would include updated climate policies, concerted action by all countries, and a shift to a lower emissions service and information economy. It is not possible to achieve the low emissions scenario through 2050 based on the current global emissions trajectory.

The 2018 CA OPC Guidance provides a range of probabilistic projections of sea level rise, which was an update specifically designed to help inform decision-makers. However, these projections may underestimate the likelihood of extreme sea level rise, particularly under high-emissions scenarios, so an extreme scenario, called the H++ scenario, was also included in the guidance. The H++ scenario assumes rapid ice sheet loss on Antarctica, which could drive rates of sea level rise 30-40 times faster than the sea level rise experienced over the last century. The updated guidance also identified different risk aversion projections that correspond to different levels of risk tolerance. These levels are represented as low, medium-high, and extreme risk aversion:

- The low risk aversion projection is appropriate for adaptive, lower consequence projects (e.g., unpaved coastal trails).

- The medium-high risk aversion projection is appropriate as a precautionary projection that can be used for less adaptive, more vulnerable projects or populations that will experience medium to high consequences as a result of underestimating sea level rise (e.g., coastal housing development).
- The extreme risk aversion projection is appropriate for high consequence projects with little to no adaptive capacity and which could have considerable public health, public safety, or environmental impacts (e.g., coastal power plant, wastewater treatment plant, etc.).

While the CA OPC Guidance provides projections through 2150, it is important to note that sea level rise is expected to continue for centuries, because the earth’s climate, cryosphere<sup>2</sup>, and ocean systems will require time to respond to the emissions that have already been released to the atmosphere. Although sea level rise is typically presented as a range in the amount of sea level rise that will occur by a certain date (e.g., 1-2 feet of sea level rise by 2050), it can also be presented as a range of time during which a certain amount of sea level rise is projected to occur (e.g., 1.5 feet of sea level rise between 2040 and 2070). Even if emissions are reduced to levels consistent with the low-emissions-based projections, sea levels will continue to rise to higher levels, just at a later date.

Table 1 presents State-recommended projections for the Santa Barbara area in terms of low, medium-high and extreme risk aversion (outlined by dark blue boxes in Table 1). CA OPC suggests that decision makers take a precautionary, risk-averse approach of using the medium-high sea level rise projections across the range of emissions scenarios for longer lasting projects with low adaptive capacity<sup>3</sup> and high consequences<sup>4</sup>. CA OPC and CA Coastal Commission (2021) recommend incorporating the H++ scenario in planning and adaptation strategies for projects that could result in threats to public health and safety, natural resources and critical infrastructure such as large power plants, wastewater treatment, and toxic storage sites. Table 1 includes the RCPs with probabilities and the non-probabilistic H++ scenario (depicted in blue on the right-hand side). High emissions scenario represents RCP 8.5; low emissions scenario represents RCP 2.6. Table 1 presents high-emission (RCP 8.5) projections of sea level rise up to 2050 because the sea level rise projections for the different emissions scenarios are similar before 2050. The probabilities included in Table 1 do not represent the actual probabilities of occurrence of sea level rise, but provide probabilities that the ensemble of climate models used to estimate the contributions of sea level rise will predict a certain amount of sea level rise (OPC 2018).

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<sup>2</sup> The cryosphere is the portions of the Earth’s surface where water is in solid form, like glaciers and ice caps.

<sup>3</sup> Adaptive capacity is the ability of a system or community to evolve in response to, or cope with the impacts of sea level rise.

<sup>4</sup> Consequences are a measure of the impact resulting from sea level rise, typically quantitative.



**TABLE 1**  
**OPC (2018) STATE GUIDANCE: PROJECTED SEA LEVEL RISE FOR SANTA BARBARA AREA IN FEET**

		Probabilistic Projections (in feet) (based on Kopp et al. 2014)				H++ scenario (Sweet et al. 2017) *Single scenario
		MEDIAN	LIKELY RANGE	1-IN-20 CHANCE	1-IN-200 CHANCE	
		50% probability sea-level rise meets or exceeds...	66% probability sea-level rise is between...	5% probability sea-level rise meets or exceeds...	0.5% probability sea-level rise meets or exceeds...	
				Low Risk Aversion	Medium - High Risk Aversion	Extreme Risk Aversion
High emissions	2030	0.3	0.2 - 0.4	0.5	0.7	1.0
	2040	0.5	0.3 - 0.7	0.8	1.1	1.6
	2050	0.7	0.4 - 1.0	1.2	1.8	2.5
Low emissions	2060	0.7	0.4 - 1.0	1.4	2.2	
High emissions	2060	0.9	0.6 - 1.3	1.6	2.5	3.6
Low emissions	2070	0.9	0.5 - 1.3	1.7	2.8	
High emissions	2070	1.1	0.7 - 1.7	2.1	3.3	4.9
Low emissions	2080	1.0	0.5 - 1.5	2.0	3.6	
High emissions	2080	1.4	0.9 - 2.1	2.7	4.3	6.3
Low emissions	2090	1.1	0.6 - 1.8	2.4	4.4	
High emissions	2090	1.7	1.1 - 2.6	3.3	5.3	7.9
Low emissions	2100	1.2	0.6 - 2.0	2.9	5.3	
High emissions	2100	2.1	1.2 - 3.1	4.1	6.6	9.8
Low emissions	2110*	1.3	0.7 - 2.1	3.0	5.9	
High emissions	2110*	2.2	1.4 - 3.2	4.2	6.9	11.5
Low emissions	2120	1.4	0.7 - 2.4	3.5	7.0	
High emissions	2120	2.5	1.7 - 3.7	4.9	8.2	13.7
Low emissions	2130	1.5	0.8 - 2.6	3.9	8.0	
High emissions	2130	2.9	1.8 - 4.2	5.6	9.5	16.0
Low emissions	2140	1.6	0.8 - 2.9	4.4	9.1	
High emissions	2140	3.1	2.0 - 4.8	6.4	11.0	18.6
Low emissions	2150	1.8	0.7 - 3.2	5.0	10.5	
High emissions	2150	3.5	2.2 - 5.3	7.2	12.6	21.4

## 2.2 Sea-level Rise Scenarios Selected for Goleta Sanitary District Climate Adaptation Plan

Considering the updated guidance discussed above, public webinars on the guidance update process<sup>5</sup>, the latest science on sea level rise and the need to use existing sea level rise hazard data for portions of this study, the following planning horizons and sea level rise scenarios are selected for the Goleta Sanitary District Climate Adaptation Plan.

### 2.2.1 Planning Horizons

The planning horizons of 2050 and 2080 were selected for the purposes of the project. These horizons were selected based on the need to plan for near- and long-term impacts related to sea level rise, as well as the existence of available coastal hazard maps that were developed for these planning horizons. Most climate models show strong agreement on the amount of sea level rise

<sup>5</sup> More information can be found here: <http://www.opc.ca.gov/climate-change/updating-californias-sea-level-rise-guidance/>

that is likely to occur by 2050, and start to diverge after 2050 based on the range of potential emissions scenarios (OPC 2013). Therefore, it is important to consider a range of sea level rise scenarios for future planning and projects with timeframes that look beyond 2050.

The planning horizons are consistent with sea level rise policy guidance documents and consistent with existing hazard mapping performed for the area by the U.S. Geological Survey (USGS) Coastal Storm Modeling System (CoSMoS) (O’Neill et al 2018) and by ESA (ESA 2015c). Years 2050 and 2080 are used to characterize the potential vulnerability timing of impacts to the wastewater system associated with sea level rise. The updated guidance introduces planning horizons beyond 2100 but these projections are presented with caution by the authors. As described in OPC (2018), most climate model experiments do not extend beyond 2100, which results in a large increase in uncertainty in projections beyond 2100. Therefore, this study does not assess sea level rise amounts projected beyond 2100.

The 2050 and 2080 planning horizons are recommended so that decisions about operations and site improvements can be matched to the timeframe for project lifespans and to facilitate the identification of triggers for potential adaptation measures. By using the planning horizons of 2050 and 2080, we can assess a range of sea level rise that could occur in Goleta Slough in the mid and long-term whether or not the amounts of sea level rise are realized at, before or after these years. These planning horizons (years) determine the amounts of sea level rise that are used to assess vulnerability to coastal flooding hazards and the timeframes over which consequent impacts and potential adaptation strategies are evaluated.

## 2.2.2 Sea-level Rise Scenarios

The sea level rise scenarios proposed for this study were selected to be consistent with the latest guidance and to utilize available coastal hazard maps for the Goleta area. The available existing information for future hazards includes USGS CoSMoS 3.0 (O’Neill et al 2018) and coastal hazard mapping by ESA for Santa Barbara County (ESA 2015).

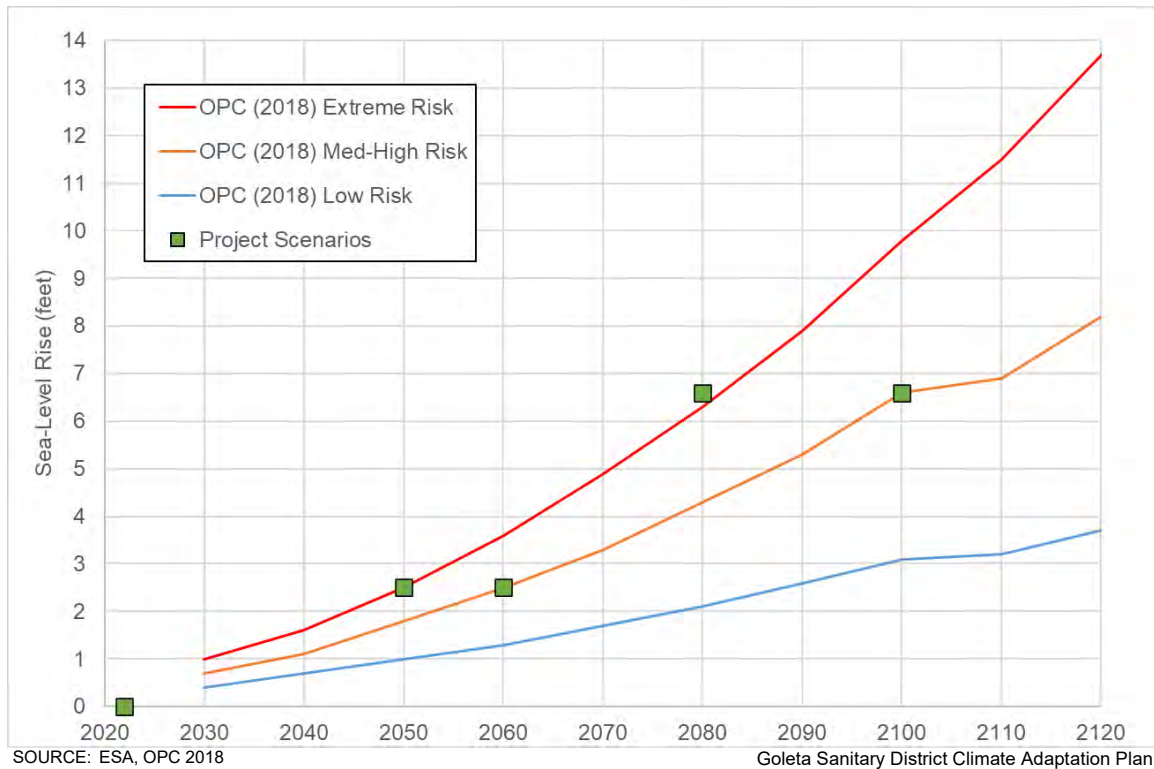
Per the latest State guidance, this study considers the probabilistic projections of sea level rise for the medium-high risk aversion scenarios as well as consideration of the H++ scenario. To account for uncertainties in sea level rise over time, and a range of assets at risk, this study uses the probabilistic projections for Medium-High and Extreme Risk Aversion levels from Table 1. A total of three sea level rise scenarios are used to perform the vulnerability assessment and adaptation plan, including existing conditions (no sea level rise) as well as future sea level rise of 2.5 feet and 6.6 feet. Table 2 below presents the proposed future sea level rise scenarios based on the State-recommended projections for each risk aversion level.

**TABLE 2  
PROPOSED SEA-LEVEL RISE SCENARIOS FOR PROJECT**

Approximate timing based on OPC (2018) projections		
Sea-level Rise Scenario	Extreme Risk Aversion	Medium-High Risk Aversion
0 feet (Existing Conditions)	n/a	n/a
2.5 feet	2050	2060
6.6 feet	2080	2100

In order to conduct the vulnerability assessment, ESA conducted updated modeling of the Goleta Slough lagoon, and relied on the available coastal hazard maps from USGS CoSMoS and ESA. Updated modeling and existing hazard maps were selected that best match the sea level rise scenarios presented in Table 2 above. While the available coastal hazards maps do not exactly match the proposed sea level rise scenarios in Table 2, the differences are acceptable given the uncertainties associated with sea level rise.

Figure 2 presents a chart of the sea level rise projections based on the CA OPC (2018) guidance. Although the publicly available hazard maps were not evaluated at the exact sea level rise amounts of OPC (2018) tabulated in Table 1, they are representative of the new guidance within a reasonable amount of uncertainty.



**Figure 2**  
 Sea-level rise projections for Santa Barbara area with project scenarios

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# CHAPTER 3

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## Data Collection

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The vulnerability assessment for this study (Chapter 4) relies on a spatial analysis overlaying wastewater asset maps with hazard maps. Geospatial data were collected for the pertinent flooding and erosion hazards as well as wastewater assets for District and other contributing jurisdictions. This chapter describes the specific data sources utilized for the study.

### 3.1 Hazard Data

Hazard data were obtained in GIS format to conduct an exposure analysis of wastewater assets for the study. ESA gathered available data on coastal hazards with sea level rise for the extent of the District’s coastal assets, including the District’s Water Resource Recovery Facility (WRRF), coastal portions of the District’s collection system, and the ocean outfall. ESA also downloaded available FEMA fluvial flood hazard data for Goleta Slough and San Pedro Creek. The following sections list the hazard sources utilized for this study. ESA compiled these hazard data in GIS for mapping and analysis of wastewater asset exposure levels with sea level rise (see Chapter 4).

#### 3.1.1 Coastal flooding, erosion and groundwater

Tidal inundation, coastal storm flooding, beach and bluff erosion, and groundwater hazard data with sea level rise are outputs from the USGS CoSMoS 3.0 (USGS 2018). Tidal inundation and coastal storm flooding hazard zones compiled for this study include corresponding low lying areas mapped by CoSMoS that may also inundate or flood.

#### 3.1.2 Coastal storm wave run-up

Wave run-up hazard data from the Santa Barbara County Coastal Resilience study (ESA 2015c) was utilized to map wave damage hazards along Goleta Beach. This hazard zone indicates areas of potential high momentum forces from wave set up and waves running up and over the beach and landward property.

#### 3.1.3 Goleta Slough extreme lagoon water levels

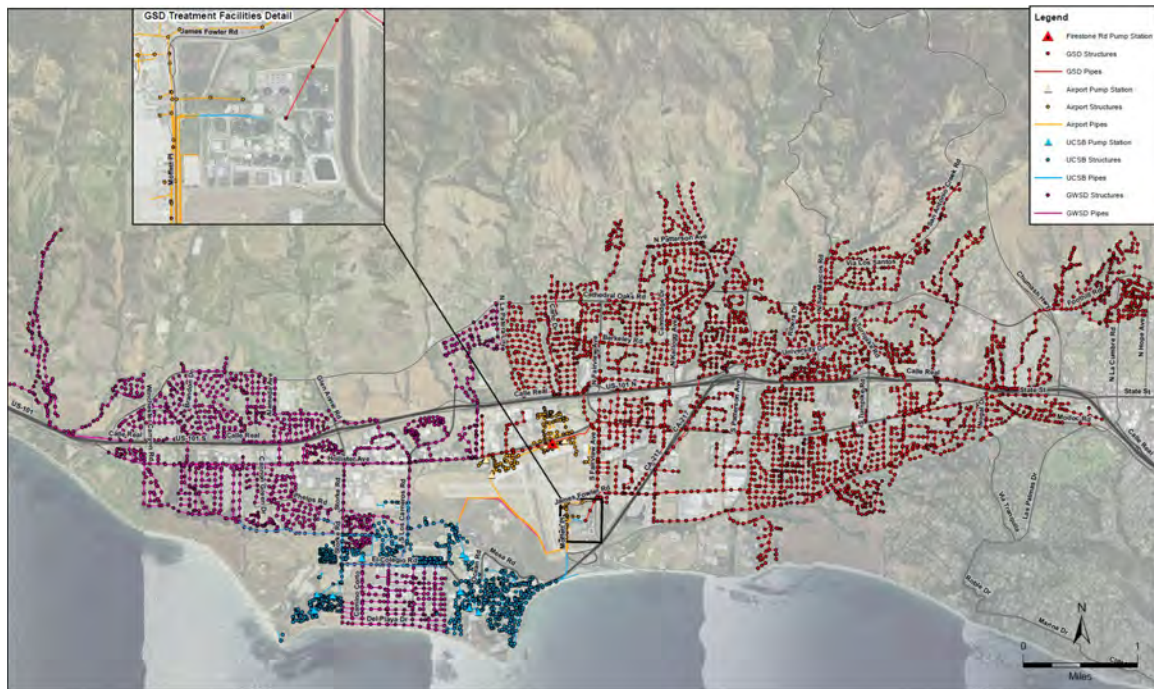
ESA applied a Quantified Conceptual Model (QCM) of Goleta Slough inlet opening and closure and water levels that ESA developed previously for the 2015 Goleta Slough Area Sea Level Rise and Management Plan (ESA 2015a). ESA ran the QCM for three sea level rise scenarios (existing conditions, 2.5 and 6.6 feet sea level rise) and two mouth management scenarios (continuing existing management and modified/adaptive future management) to estimate existing and future extreme lagoon water levels in Goleta Slough. ESA then used readily available LiDAR topographic data from a public source to map Goleta Slough extreme lagoon water level flood extents. See **Appendix A** for more information on the QCM.

### 3.1.4 Existing fluvial flooding

ESA obtained the most recent available FEMA Flood Insurance Study and Flood Insurance Rate Map (FEMA 2018) for Goleta Slough and San Pedro Creek to define existing fluvial flood hazards for the 100-year event. Santa Barbara County Flood Control confirmed no recent flood modeling has been performed for Goleta Slough and San Pedro Creek since the effective September 2018 FEMA maps were released (J. Frye, personal communication, August 26, 2021).

## 3.2 Wastewater Asset Data

District wastewater assets include manholes, cleanouts, junction boxes, and drop structures (collectively referred to as structures), pumps, pipes and other wastewater collection and treatment facilities. Georeferenced asset data were obtained by MNS from the various jurisdictions that convey wastewater District treatment facilities. These data were used along with the hazard data in GIS to create asset exposure maps and tabulate exposed assets by hazard and sea level rise scenario (see Section 5). Figure 3 shows the extents of wastewater assets that flow to the District.



SOURCE: GSD, UCSB, GWSD, SB Airport, ESRI

Goleta Sanitary District Climate Adaptation Plan

**Figure 3**  
Wastewater Assets

### 3.2.1 Goleta Sanitary District (District)

Collection system GIS data on pipe and structure locations were obtained from the District. The District’s outfall pipe and maintenance access vault were approximated in GIS from aerial imagery and as-built drawings provided by the District. District structures represented by points

include manholes, cleanouts, drop structures and the Firestone Road Pump Station. District pipes represented by lines include gravity and force mains.

### 3.2.2 Santa Barbara Airport (Airport)

Collection system GIS data on pipes and structures were obtained from the City of Santa Barbara, Airport Department. Structures represented as points include lift stations, manholes, cleanouts and interceptors. Detailed review and validation of Airport GIS data is not within the scope of this study because the current study is focused on District assets. Based on an initial review, the Airport GIS data appears to be redundant of other jurisdictions in some areas and is possibly not accurate or up to date in some areas. A minor effort was made to reduce redundancy for pump stations, but not for other features such as manholes and pipes. This Airport GIS data should be revised and/or updated for use in any study focused on Airport assets.

### 3.2.3 Goleta West Sanitary District (GWSD)

Collection system GIS data on pipes and structures were obtained from MNS records. MNS provides GIS services to update and maintain the GWSD GIS database. Structures represented as points include manholes and cleanouts. Pipes are represented as lines.

### 3.2.4 University of California Santa Barbara (UCSB)

Collection system GIS data on pipes and structures were obtained from the UCSB Design, Facilities & Safety Services Department. Structures represented as points include pumps, manholes, cleanouts and other structures. Pipes are represented as lines.

# CHAPTER 4

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## Vulnerability Assessment

This chapter presents the methods and findings of the sea level rise vulnerability assessment using spatial data for coastal hazard zones (described in Section 3.1) and wastewater assets (described in Section 3.2). ESA assessed the vulnerability of wastewater pipes, lift stations, and other structures in the District and other contributing jurisdictions. The discussion focuses on District assets exposed to various hazards. Exposures of other jurisdiction assets are documented in the summary tables for context and future coordination purposes, but are not assessed or discussed in the text because the scope of this study is limited to District assets.

In order to develop an effective adaptation plan and policies to address sea level rise vulnerability, the risk of not taking action must be understood first. For this reason, the vulnerability assessment analyzes impacts from a “no action” scenario in which asset managers do not prepare for or respond to sea level rise. By considering this scenario, the District, neighboring jurisdictions and other decision makers can understand the full potential impacts of sea level rise, identify areas and/or individual assets with the greatest vulnerabilities, and then plan adaptation to reduce identified vulnerabilities.

Vulnerabilities of wastewater assets were determined for each hazard type considered in this study: coastal, fluvial, and estuarine hazards. An asset’s vulnerability to a given hazard is a function of the quantity of exposed assets, the consequences of exposure, and the adaptive capacity of the asset (i.e. asset’s ability to be modified to mitigate or avoid exposure). Asset exposures were determined by intersecting each asset layer with each hazard zone in ArcGIS. In general, point assets (like manholes, pump stations) in each hazard zone are counted while linear assets (like collection pipes and force mains) are measured in feet. The resulting asset exposure for each hazard type is summarized in the following sections. Hazard Exposure maps that overlay assets and hazards are provided in **Appendices C, D and E**. Assets exposed to each hazard for each time horizon are summarized in the following sections with accompanying discussion of the consequences and adaptive capacity of the assets exposed.

### 4.1 Coastal Hazard Exposure

Coastal hazards analyzed include the following 5 categories of permanent and temporary impacts without action. The categories are distinguished between chronic long-term impacts and temporary extreme event-based impacts.

- Areas subject to the potential future **beach and bluff erosion** hazard zones may be lost entirely (permanent impacts, greatest consequences). Beach erosion consists of landward shoreline movement and scour of assets built on or within the beach. Bluff erosion includes sloughing and erosion of the bluff top and face due to coastal erosion from wave action on the toe of bluff as well as terrestrial erosion processes.

- Areas in the potential future **tidal inundation** hazard zone would be impacted regularly by inundation (permanent impacts, greatest consequences). Tidal inundation represents the potential for chronic infiltration of brackish/salt water to occur at high tides.
- Areas in the **groundwater emergence** hazard zone would be similarly impacted regularly by inundation (permanent impacts, greatest consequences).
- Areas in the potential future **coastal storm flooding** hazard zone would be inundated by extreme high ocean water levels caused by storm surge (temporary impacts, significant consequences). Temporary infiltration of brackish water may occur at unsealed manholes or other access structures. USGS CoSMoS storm scenarios assume that the storm coincides with a “high spring tide (tide levels that occur approximately twice every month). This represents a near-worst case scenario, with the ‘King Tide’ being slightly higher but much less frequent, occurring typically only during two ~3- to 4-day periods per year.”
- Areas in the potential future **coastal storm wave run-up** hazard zone may be damaged or disrupted from flowing water, but assets are likely recoverable, and would return to service when waves and floodwaters recede (temporary impacts, low to moderate consequences).

Table 3 summarizes the number of structures and length of pipe in each jurisdiction that are exposed to each coastal hazard under the three sea level rise scenarios. The following subsections summarize the quantity (count or length) of wastewater assets exposed to each hazard type with discussion on the consequences of each exposure category and the adaptive capacity of exposed assets. Asset exposure maps for the coastal hazard types are provided in **Appendix C**.

**TABLE 3  
COASTAL HAZARD EXPOSURE SUMMARY**

Agency	Asset	Unit	Existing Sea Level				2.5 Feet Sea-level Rise (2050 timeframe) <sup>1</sup>					6.6 Feet Sea-level Rise (2080 timeframe) <sup>1</sup>					
			TID	GW	FLD	WR	ER	TID	GW	FLD	WR	ER	TID	GW	FLD	WR	
GSD	Firestone Rd. LS	ct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Outfall Vault	ct	0	0	0	1	0	0	0	0	1	1	0	1	1	1	1
	Structures	ct	0	53	54	0	3	1	54	53	0	4	50	74	107	0	0
	Outfall Pipe	FT	246	230	901	48	0	833	513	1k	283	79	1.4k	1.2k	1.8k	381	0
	Other Pipes	FT	69	15.4k	12.5k	0	468	208	16.0k	12.3k	0	709	10.9k	19.6k	25.3k	0	0
Airport	Lift Station	ct	0	0	3	0	0	0	0	3	0	0	3	2	4	0	0
	Structures	ct	0	20	75	0	0	5	21	75	0	0	88	66	123	0	0
GWSD	Structures	ct	0	54	73	0	0	4	54	74	0	9	66	60	98	0	0
UCSB	Lift Station	ct	0	0	0	1	0	0	0	1	1	0	1	0	2	1	1
	Structures	ct	0	16	7	0	12	2	16	9	0	35	21	22	78	2	2

Abbreviations: ct-count, FT-feet, TID-tidal inundation, GW-groundwater emergence, FLD-coastal storm flooding, WR-coastal storm wave run-up, ER-coastal erosion  
1. Date corresponds to the extreme risk aversion curve for sea level rise by OPC 2018.



## 4.2.1 Beach and Bluff Erosion

A total of three District structures along Austin Road bluff top are exposed to bluff erosion with 2.5 feet sea level rise. Five structures are exposed to coastal erosion with 6.6 feet sea level rise, including shoreline erosion past the outfall maintenance vault at Goleta Beach and bluff erosion at four structures along Austin Rd.

With 2.5 feet sea level rise, 468 feet of pipe along Austin Rd bluff top is exposed to bluff erosion. The exposed length increases to 709 feet with 6.6 feet sea level rise. In addition, 79 feet of unrestrained outfall pipe at Goleta Beach are exposed to shoreline erosion with 6.6 feet sea level rise.

The District’s outfall pipe and associated maintenance vault at Goleta Beach Park are exposed to coastal storm flooding and wave run-up under existing conditions that may lead to coastal erosion around the structure. The outfall pipe landward of the maintenance vault is comprised of unrestrained pipe segments that are at risk of destabilization if shoreline erosion proceeds landward of the maintenance vault. Thus, it appears the outfall pipe will need to be “restrained” for a distance inland of the maintenance vault based on estimates of coastal erosion projections. The District currently has an initial adaptation plan to remove and/or abandon the maintenance vault when needed (S. Wagner, District, personal communication, June 1, 2021).

### **Consequences and Adaptive Capacity**

The exposed Austin Road sewers currently service 8 of the 10 bluff top single family residences on the beach side of Austin Road. Two homes remain on septic systems. The homes on the north side of Austin Road are primarily served by sewer lines located in easements between Austin Road and Louisiana Place. Bluff erosion that would cause failure of the District sewer assets on Austin Road would first affect the homes themselves on the beach side. Such erosion would also remove access to the homes on the north side of Austin Road and minimize any associated sewer flow. The sewer lines are local on Austin Road and convey no other flows (L. Astorga, District, personal communication, November 1, 2021). District staff estimate that potential failure of the sewer lines on Austin Road could involve the spill of several hundred gallons of wastewater (L. Astorga, District, personal communication, November 1, 2021). A spill could potentially result in regulatory and legal action against the District. Protective measures which may be required to mitigate coastal erosion risks to residences between sewer collection system infrastructure and the coastal bluff are likely to protect existing wastewater assets, if implemented by others. The adaptive capacity of the gravity sewers exposed to bluff erosion is low. While hardening assets to reduce risks of failure is possible, it may not be effective depending on the extent of shoreline erosion. If property protection measures are not implemented by others, incremental abandonment/capping of District facilities as properties and associated infrastructure are lost to erosion would minimize any District facility loss and sanitary sewer overflow (SSO) volume.

A potential failure of the existing unrestrained outfall pipe segments landward of the maintenance vault would likely result in a substantial spill of treated wastewater at the point of joint separation and result in a violation of the District’s NPDES permit (Order No. R3-2017-0021, NPDES No. CA0048160). Minimal ability to divert treated wastewater flows and challenging repair

conditions would likely cause a potential spill to extend over a significant duration. The adaptive capacity of the unrestrained outfall pipe segments is moderate and would require excavation and installation of joint restraining devices at each pipe joint or replacement pipe. Due to the location of the outfall pipeline, extensive permitting would be required to complete this installation, and construction conditions would be challenging.

## 4.2.2 Tidal Inundation

Tidal inundation exposure in this study represents inundation from typical monthly spring tide conditions. No District structures are exposed to tidal inundation under existing conditions. One structure is exposed with 2.5 feet sea level rise and 50 are exposed with 6.6 feet sea level rise.

Not including the outfall pipe, 69 feet of pipe is exposed to tidal inundation under existing conditions under San Pedro Creek. The exposed pipe length increases to 208 feet with 2.5 feet sea level rise, and to 10,869 feet exposed with 6.6 feet sea level rise. In addition, 246 feet of outfall pipe (landward of the beach access vault) is exposed within the main Slough channel. Tidally-exposed outfall pipe length increases to 1,400 feet with 6.6 feet of sea level rise.

### Consequences and Adaptive Capacity

Tidal exposure of buried pipes indicates the area above them may convert to wetlands (e.g., existing upland open space areas may convert to wetland). Thus, these sections of pipe will potentially become harder to access for maintenance.

Tidal inundation of areas with wastewater assets will also result in increased rates of inflow and infiltration (I&I) into the wastewater collection system. These additional flows will have multiple impacts:

- Increased flow rates within the collection system, potentially beyond the capacity of the collection system to convey wastewater. This could result in SSOs and regulatory action against the District.
- Increased flows of wastewater to the WRRF resulting in higher pumping and treatment costs.
- Increased levels of chlorides and total dissolved solids (TDS) from brackish/saltwater I&I into WRRF influent flows could potentially impact the treatment process and quality of final effluent and recycled water.

The adaptive capacity of District assets is high. Pipelines and manholes experiencing infiltration can be lined or wrapped to reduce I&I issues. Manhole frames and covers outside of roadways can be raised to elevate frames and covers above maximum water levels. Manhole frames and covers unable to be raised can be sealed to reduce inflow. These adaptations are not anticipated to fully address these identified consequences, but can reduce them substantially.

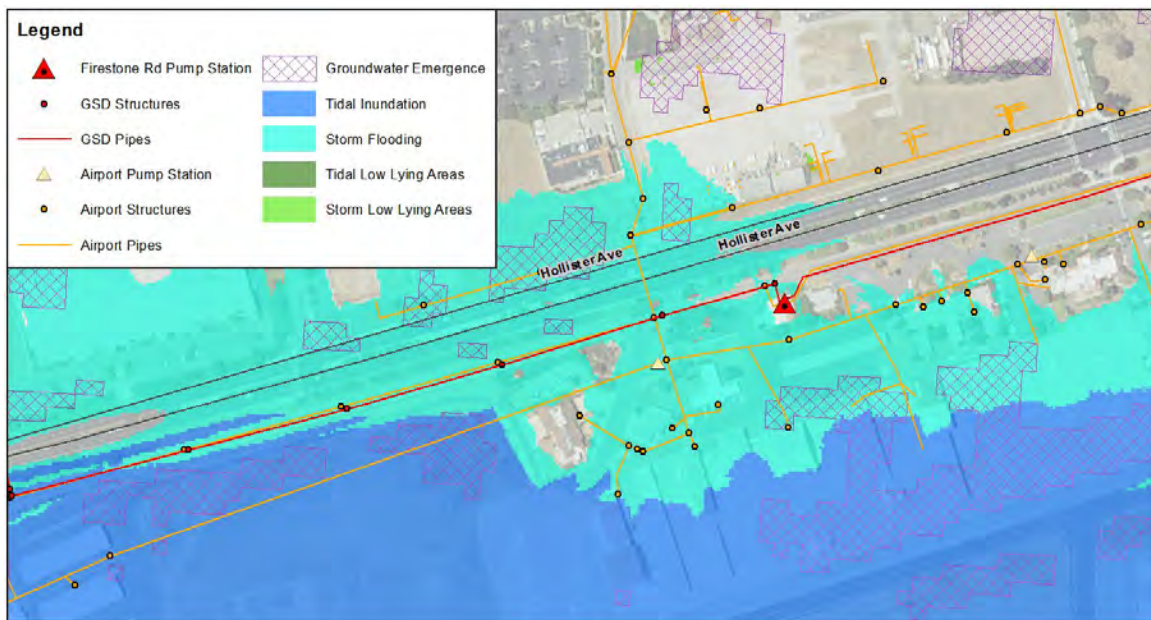
The same adaptations are applicable for other agency assets, but they are not owned or maintained by the District. The District has less control over implementation of identified adaptation measures for other agency assets and the capacity of the District to adapt to impacts to other agency assets is therefore considered moderate.

### 4.2.3 Coastal Flooding and Wave Run-up

A total of 54 District structures are exposed to coastal storm flooding under existing conditions. The number of exposed structures is 53 with 2.5 feet sea level rise and 107 with 6.6 feet sea level rise. The outfall maintenance vault at Goleta Beach is exposed to coastal storm wave run-up under existing conditions and with future sea level rise. No other District structures are exposed to wave run up. The slight decrease in exposed structures from zero to 2.5 feet of sea level rise is due to variations in the CoSMoS storm flood extents mapped for those scenarios.

The Firestone Road lift station is potentially exposed to coastal storm flooding with 6.6 feet sea level rise. The pump house itself is not within the coastal flood hazard zone but Firestone Road and the area surrounding the pump house is shown as flooded by the 100-year coastal storm (see Figure 4 below). Other roads are exposed to coastal storm flooding that provide access to the WRRF from the north: South Fairview Avenue near Hollister Avenue and James Fowler Road near the Santa Barbara Airport.

Thousands of feet of pipes are exposed to coastal flooding under existing and future sea levels. Note that the unrestrained portion of outfall pipe that is within the wave run-up hazard zone may be affected if the pipe is exposed by coastal erosion (see Section 5.1.1).



SOURCE: GSD, UCSB, GWSD, SB Airport, ESRI

Goleta Sanitary District Climate Adaptation Plan

**Figure 4**  
Firestone Road Pump Station Coastal Flooding Exposure  
with 6.6 Feet Sea-Level Rise

### Consequences and Adaptive Capacity

Extreme coastal flooding events may temporarily limit access of the Firestone Road lift station with 6.6 feet of sea level rise. Extreme coastal flooding and wave run-up into Goleta Slough has the potential to cause increased rates of I&I into the wastewater collection system under existing

conditions and future sea level rise will exacerbate this issue. Additionally, infrastructure may be harder to access from above for emergency maintenance during flood events. The additional brackish/saltwater flooding of the collection system will have multiple consequences:

- Increased flow rates within the collection system during coastal storm events.
- Increased flows of wastewater to the WRRF, resulting in higher pumping and treatment costs.
- Increased levels of chlorides and TDS in WRRF influent flows could potentially impact the treatment process and quality of final effluent and recycled water.

The adaptive capacity of District assets is high. Pipelines and manholes experiencing infiltration can be lined or wrapped to reduce I&I issues. Manhole frames and covers outside of roadways can be raised to elevate frames and covers above maximum water levels. Manhole frames and covers unable to be raised can be sealed to reduce inflow. These adaptations are not anticipated to fully address these identified consequences, but can reduce them substantially.

## 4.2.4 Groundwater Emergence

Groundwater emergence was evaluated to identify sewer structures that may become exposed to inflows as groundwater ponds at the ground surface in certain areas. A total of 53 District structures are exposed to potential groundwater emergence under existing conditions. The number of exposed structures increases to 54 with 2.5 feet sea level rise and 74 with 6.6 feet sea level rise. Not including the outfall, 15,441 feet of pipe are exposed to groundwater emergence under existing conditions. The length increases to 16,042 feet exposed with 2.5 feet sea level rise, and to 19,616 feet exposed with 6.6 feet sea level rise. Groundwater emergence above buried pipes indicates the area may convert to wetlands. Thus, these sections of pipe will potentially become harder to access for maintenance.

Underground/deep facilities such as the District's water reclamation facility will become exposed to rising groundwater levels associated with sea level rise.

### Consequences and Adaptive Capacity

Increased groundwater will result in increased rates of I&I into the wastewater collection system. These additional flows will have multiple impacts:

- Increased flow rates within the collection system.
- Increased flows of wastewater to the WRRF, resulting in higher pumping and treatment costs.
- Increased levels of chlorides and TDS in WRRF influent flows could potentially impact the treatment plant process and quality of final effluent and recycled water (groundwater may be salty).

Additionally, increased groundwater levels could result in impacts to the below grade reclaimed water storage tanks and chlorine contact tanks. If these facilities are not full, there is a potential risk of floatation of these tanks.

The adaptive capacity of District collection system assets is high. Pipelines and manholes experiencing infiltration can be lined or wrapped to reduce issues. Manhole frames and covers outside of roadways can be raised to elevate frames and covers above maximum water levels. Manhole frames and covers unable to be raised can be sealed to reduce inflow. These adaptations are not anticipated to fully address these identified consequences, but can reduce them substantially.

The adaptive capacity of reclaimed water storage tanks and chlorine contact tanks is moderate. Additional research will be required to determine if design criteria used to design the facilities is sufficient to resist floatation with increased groundwater levels. If floatation is a risk, adaptation efforts are potentially significant, although feasible.

The same adaptations are applicable for other agency assets, but they are not owned or maintained by the District. The District has less control over implementation of identified adaptations and the capacity for the District to adapt other agency assets is therefore considered moderate.

## 4.2 Fluvial Flooding

The fluvial flood exposure was determined from current effective FEMA flood rate insurance mapping. This mapping represents the 100-year creek and river flooding from extreme precipitation in the watershed draining into Goleta Slough, as well as coastal flooding along the coast with current sea level. The asset exposure map for fluvial flooding is provided in **Appendix D**. While not examined in detail for this study, it is generally understood that today’s 100-year fluvial flood may become more frequent with climate change due to more intense extreme precipitation events. Additionally, the resulting flooding from any given event will become more extensive in the future as downstream water levels in Goleta Slough increase with sea level rise.

In association with extreme fluvial floods, the District has observed creek bank erosion along eastern plant boundary (San Pedro Creek). Bank erosion may threaten pond berm stability along San Pedro Creek.

Table 4 summarizes the number of sewer structures in each jurisdiction that are exposed to existing 100-year fluvial flooding based on current FEMA flood mapping. A total of 341 District structures are exposed to extreme fluvial flooding, as delineated by the FEMA 100-year event. Length of pipe exposed to flooding is not reported as consequences are expected to be minimal (i.e. the buried pipe would be unaffected by temporary flooding above ground).

In addition to the flood exposures shown in Table 4, extreme fluvial flooding inundates many access roads to the Firestone Road lift station (Firestone Road, Hollister Avenue) and the District WWTF itself (South Fairview Road, James Fowler Road, Moffett Place).

**TABLE 4**  
**FLUVIAL FLOODING HAZARD EXPOSURE SUMMARY**

Jurisdiction	Asset	Unit	Fluvial Flooding Exposure (100-year event)
GSD	Firestone Rd. LS	count	1
	Structures	count	341
Airport	Lift Station	count	5
	Structures	count	155
GWSD	Structures	count	178
UCSB	Lift Station	count	0
	Structures	count	61

SOURCE: ESA/SB County, USGS, NAIP, GSD, Santa Barbara Airport, UCSB, GWSD

## Consequences and Adaptive Capacity

Fluvial Flooding will result in increased rates of I&I into the wastewater collection system. These additional flows will have multiple impacts:

- Increased flow rates within the collection system, potentially beyond the capacity of the collection system to convey wastewater. This could result in SSOs and regulatory action against the District.
- Increased flows of wastewater to the WRRF, resulting in higher pumping and treatment costs.

Additionally, flood conditions may limit access to some manholes which could cause challenges if a blockage occurs and cannot be accessed for clearing. Access to the Firestone Road lift station WRRF may be limited during extreme fluvial flooding events.

Unabated creek bank erosion along the eastern WRRF boundary adjacent to San Jose Creek could potentially result in a failure of the sludge stabilization basins and flow equalization basins.

The adaptive capacity of District assets is high. Pipelines and manholes experiencing infiltration can be lined or wrapped to reduce issues. Manhole frames and covers outside of roadways can be raised to elevate frames and covers above maximum water levels. Manhole frames and covers unable to be raised can be sealed to reduce inflow. These adaptations are not anticipated to fully address these identified consequences, but can reduce them substantially.

The adaptive capacity to address access issues during extreme fluvial flooding is low, and would require significant access modifications, or relocation of facilities to enhance access.

The adaptive capacity to reduce erosion risks along the eastern WRRF boundary is high and could consist of protecting the existing slopes to resist erosion.

The same adaptations are applicable for other agency assets, but they are not owned or maintained by the District. The District has less control over implementation of identified adaptations and the capacity for the District to adapt other agency assets is therefore considered moderate.

## 4.3 Estuarine Flooding

The estuarine flood represents a combined condition where (1) the beach berm builds up at Goleta Slough mouth over the summer season and subsequently (2) creek flows from a moderate rain event fill the Slough behind the closed mouth until the water level overtops the beach berm and scours the mouth so that the Slough can drain to tidal levels. The following sections summarize the modeling effort to estimate extreme estuarine flooding in Goleta Slough and exposure of wastewater assets to this flood source.

### 4.3.1 Goleta Slough Quantified Conceptual Model

The Quantified Conceptual Model (QCM) provides a framework predicting the long-term evolution of lagoon mouth and lagoon water levels (Behrens et al. 2015). This framework uses empirical data and parameterizations to quantify the hydrology of lagoon, coastal influences to the beach, and hydraulics of the mouth. Here, we used QCM for an 8-year simulation of Goleta Slough considering existing conditions, as well as mid-century (2.5 feet) and late-century (6.6 feet) sea level rise scenarios (see Table 1). The Goleta Slough lagoon mouth channel is currently managed by breaching the lagoon mouth channel such that the channel bed elevation (i.e., the mouth channel thalweg) typically does not exceed 9 feet NAVD88 on an emergency basis. With sea level rise, emergency lagoon mouth management would be required more frequently with higher costs to maintain a channel elevation of 9 feet NAVD88. Therefore, adaptive emergency breaching of the lagoon to the projected sea level rise was also considered in this study. Here, simulations of sea level rise scenarios are performed by assuming existing breaching (thalweg elevation limited to 9 feet NAVD88) and adaptive breaching (thalweg elevation limited to 9 feet NAVD88 plus sea level rise of 2.5 feet or 6.6 feet). The lowest and highest levels of ocean tides, and simulated lagoon water levels and thalweg elevations at the mouth are reported in Table 5 below. Additional details on the Goleta Slough QCM modeling and results are presented in **Appendix A**.

**TABLE 5**  
**RANGES OF MODELED WATER LEVELS AND THALWEG ELEVATIONS IN GOLETA SLOUGH (FEET NAVD88)**

Case	Sea-level Rise	Breaching	Ocean Tides (feet NAVD)	Modeled Lagoon Water Levels (feet NAVD)	Modeled Thalweg Elevations (feet NAVD)
1	0 feet (existing)	Existing	-2.7 – 7.4	0.95 – 10.1	1.0 – 8.6
2	2.5 feet	Existing	0.1 – 9.9	3.5 – 11.2	3.5 – 9
3	6.6 feet	Existing	4.2 – 14.0	8.4 – 13.4	7.6 – 9
4	2.5 feet	Adaptive	0.1 – 9.9	3.5 – 11.2	3.5 – 11.0
5	6.6 feet	Adaptive	4.2 – 14.0	5.5 – 15.2	7.6 – 15.2

### 4.3.2 Goleta Slough Flooding

Our analysis indicates that future estuarine flood levels increase less than the amount of sea level rise. This is likely because of the flat land elevations at the higher flood levels (hypsoetry) surrounding the Goleta Slough basin; the area of flooding increases with elevation and “spreads

out laterally” rather than rising as much as projected sea levels. The asset exposure map for estuarine flooding is provided in **Appendix E**. The Goleta Slough modeling effort (see **Appendix A**) presumes that emergency mouth management (existing or adaptive) would occur ahead of significant precipitation events in the future. If the mouth isn't breached, the extents of estuarine flooding would be greater than shown in **Appendix E** and would cause greater impacts than summarized below.

Table 6 summarizes the number of structures in each jurisdiction that are exposed to estuarine flooding from Goleta Slough under each sea level rise and mouth management scenario. A total of 4 District structures are exposed to estuarine flooding from Goleta Slough under existing conditions. The number of exposed structures increases to 8 with 2.5 feet sea level rise for both existing mouth management and adaptive mouth management is implemented. The number further increases to 39 exposed structures with 6.6 feet sea level rise under existing mouth management, and to 69 exposed structures under adaptive mouth management for the same sea level. In addition to the exposures summarized in Table 6, James Fowler Road is exposed to estuarine flooding with 2.5 feet sea level rise and greater.

**TABLE 6  
ESTUARINE HAZARD EXPOSURE SUMMARY**

Jurisdiction	Asset	Unit	Existing Sea Level		2.5 Feet Sea-level Rise		6.6 Feet Sea-level Rise	
			Existing Mouth Mgmt.	Existing Mouth Mgmt.	Adaptive Mouth Mgmt.	Existing Mouth Mgmt.	Adaptive Mouth Mgmt.	
Goleta Sanitary District	Firestone Rd. LS	count	0	0	0	0	0	0
	Structures	count	4	8	8	39	69	
Airport	Lift Station	count	0	1	1	2	2	
	Structures	count	5	17	17	85	112	
GWSD	Structures	count	5	10	10	25	34	
UCSB	Lift Station	count	0	0	0	0	0	
	Structures	count	7	10	10	34	70	

SOURCE: ESA/SB County, USGS, NAIP, GSD, Santa Barbara Airport, UCSB, GWSD

## Consequences and Adaptive Capacity

Estuarine Flooding will result in increased rates of I&I into the wastewater collection system. These additional flows will have multiple impacts:

- Increased flow rates within the collection system, potentially beyond the capacity of the collection system to convey wastewater. This could result in SSOs and regulatory action against the District.



- Increased flows of wastewater to the WRRF, resulting in higher pumping and treatment costs.
- Increased levels of chlorides and total dissolved solids (TDS) from brackish/saltwater I&I into WRRF influent flows could potentially impact the treatment plant process and quality of final effluent and recycled water.

Flood conditions may limit access to some manholes, which could cause challenges if a blockage occurs and cannot be accessed for clearing. Additionally, access to the WRRF may be limited during extreme flooding conditions. Access to the District’s lift station is not anticipated to be significantly impacted.

The adaptive capacity of District assets is high. Pipelines and manholes experiencing infiltration can be lined or wrapped to reduce issues. Manhole frames and covers outside of roadways can be raised to elevate frames and covers above maximum water levels. Manhole frames and covers unable to be raised can be sealed to reduce inflow. These adaptations are not anticipated to fully address these identified consequences, but can reduce them substantially.

The adaptive capacity to address access issues during extreme estuarine flooding is low, and would require significant access modifications, or relocation of facilities to enhance access.

The same adaptations are applicable for other agency assets, but they are not owned or maintained by the District. The District has less control over implementation of identified adaptations and the capacity for the District to adapt other agency assets is therefore considered moderate.

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# CHAPTER 5

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## Adaptation Measures

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Upon reviewing the specific District asset vulnerabilities (Chapter 4), the project team identified several adaptation measures that can increase the resilience of District assets to sea level rise and maintain treatment functionality. Three adaptation measures were selected by District for analysis in this study, while additional adaptation measures are discussed generally in this chapter and identified for study in future planning efforts.

### **Adaptation measures selected for analysis in this study are:**

- **Recycled water underground storage tank anchoring**
- **Firestone Road Pump Station floodproofing**
- **San Pedro Creek bank stabilization along District ponds**

Adaptation measures identified for future study include:

- Collection system I&I management (manholes, pipes, junctions, etc.)
- Protection of ocean outfall access vault at Goleta Beach from erosion and wave run-up
- Austin Road collection system modifications
- District WRRF access improvement

The following sections document the above adaptation measures. Measures selected for analysis are described with conceptual design graphics, potential timing of implementation and probable engineering cost estimates.

## **5.1 Adaptation Measures Analyzed**

For this study, ESA was scoped to analyze three adaptation measures that address key District vulnerabilities to sea level rise and associated hazards. After conversations with the District about potential vulnerabilities identified (Chapter 4) and potential suitable adaptation measures to address these vulnerabilities, the District selected the following adaptation measures for analysis: improve the resilience of the recycled water underground storage tank and chlorine contact tank, improve flood management of the Firestone Road pump station, and improve protection of the San Pedro Creek bank along the District ponds. These three adaptation measures are summarized below.

## 5.1.1 Recycled Water Underground Storage Tank and Chlorine Contact Basin

Rising groundwater levels associated with sea level rise in Goleta Slough will increase buoyancy forces on underground facilities such as the recycled water underground storage tank and chlorine contact basin. MNS conducted a simplified buoyancy analysis of the existing below grade recycled water storage tank and chlorine contact basin based on available record drawings and coastal hazard data for late century (6.6 feet sea level rise and 100-year coastal storm).



Both structures were constructed with extended base slabs to counteract buoyant forces to prevent floatation; however, the assumptions used in sizing these extended slabs are unknown. Geotechnical reports for original construction of the structures were not available for preparation of this analysis. The analysis for both structures includes an assumption of fresh water (non-sea water) groundwater levels up to the grade/ground surface surrounding each structure, with each structure empty. This analysis scenario represents the potential groundwater conditions in the future with 6.6 feet of sea level rise during a 100-year coastal storm event. Groundwater has the potential to rise within 3.3 feet of the ground surface in this location by late century with 6.6 feet sea level rise. During a storm event, saturated soils could be expected to come up to grade on a temporary basis.

The results of the analysis indicate both structures are potentially at substantial risk of floatation if drained of water, with the recycled water storage tank being more severely at risk. Conservative values are assumed for the weight of soil and soil resistance friction angle. It is recommended that the District conduct a geotechnical analysis of the backfill and native soil to determine more accurate values for the weight of soil and soil resistance friction angle, and the buoyancy calculations be updated accordingly. If the updated calculations continue to show a substantial risk of floatation, adaptation alternative should be evaluated to prevent floatation. These adaptation alternatives could include the following:

- Document operational procedures to maintain water in the structures except during periods of sufficiently low groundwater,
- Add weight to the structures to resist floatation
- Install piles or other structural modifications to enhance resistance to uplift

Costs associated with conducting the recommended geotechnical investigation and updating calculations is estimated to be approximately \$20,000. Costs to mitigate floatation issues cannot be developed without additional information on the severity of the issue and an analysis of available alternatives.

## 5.1.2 Firestone Road Pump Station

The Firestone Road pump station is within the FEMA 100-year flood zone for precipitation-driven river flooding. Otherwise, access to the pump station may be impaired during extreme (100-year) coastal flooding at the end of the century based on CoSMoS flood mapping for 6.6 feet sea level rise (see Figure 4). MNS completed an evaluation of necessary improvements to reduce risks associated with flooding of the Firestone Road Pump Station.

The Firestone Road Pump Station is located within a FEMA 100-year floodplain with a Base Flood Elevation of 18 feet. It is anticipated sea level rise could further exacerbate future flood risk; an estimate of 2.5 feet of additional flood depth was used as a basis for the evaluation. The ground elevation at the pump station site is approximately 14 feet, resulting in a maximum flood depth elevation of 6.5 feet. The effects of future sea level rise and climate change on the extents of the 100-year fluvial flooding event were not examined in this study. We recommend that future lift station flood proofing design for fluvial flood resilience includes updated hydraulic modeling of the fluvial flood event in Goleta Slough basin for existing conditions and future sea level rise and climate change driven changes in precipitation.

The wall surrounding the pump station was not designed as a hydraulic structure, nor to resist hydraulic loading. A structural analysis of the existing wall demonstrated a flood condition in excess of 3 feet above grade could result in failure of the wall. Additionally, installation of a waterproof membrane or coating would be required to reduce stormwater entering the pump station site. Either replacement of the existing wall with a new more robust wall, or construction of a new, appropriately designed wall, surrounding the entire site should be considered. Additionally, there is an existing rolling gate at the front of the pump station to provide access withing the site, which does not provide any protection against flood waters. To address this issue, a hydraulic gate which automatically closes when exposed to flood waters is recommended. The proposed gate would need to be integrated into the existing wall, or new structure if constructed.

A total budget of approximately \$500,000 is recommended for improvements to flood proof the Firestone Road pump station.

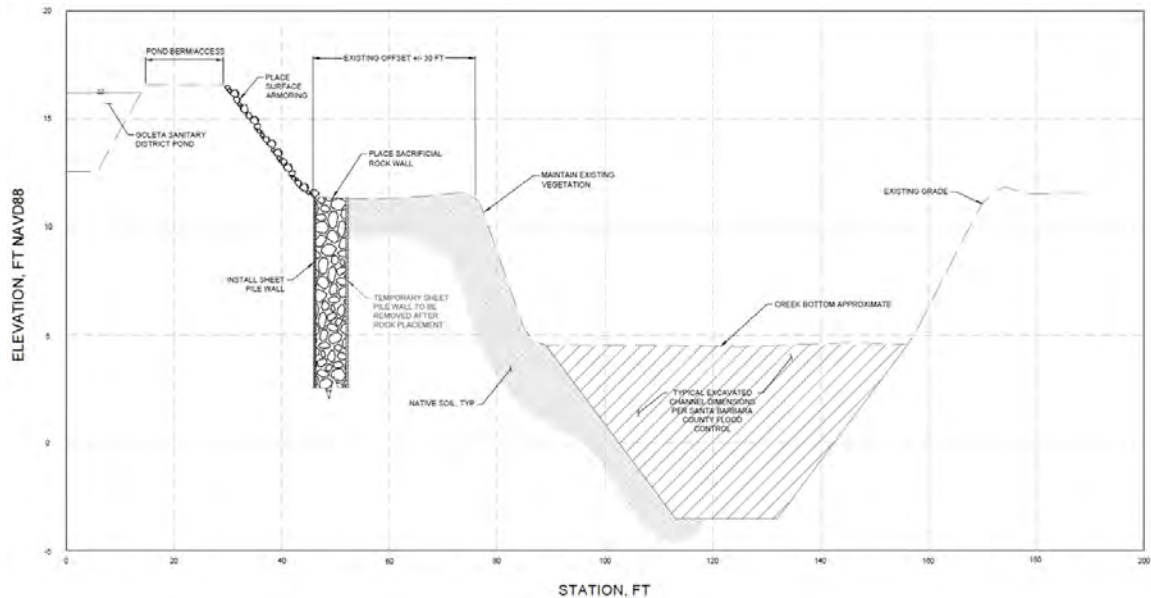
## 5.1.3 San Pedro Creek bank along District ponds

San Pedro Creek flows from north to south along the east boundary of District property. The Santa Barbara County Flood Control District regularly maintains this lower segment of the creek as a sedimentation basin by excavating accumulated sediment. Bank erosion along the District property has the potential to jeopardize the stability District pond berms adjacent to the creek. The District and ESA team discussed an option to reduce this vulnerability with concepts that include installing sheet piles along the outboard toe of the existing stabilization pond berms and protecting the face of the berms. ESA team developed two conceptual alternatives that build on those elements with varying impact footprints relative to the existing creek bank. Two conceptual creek bank stabilization alternatives are described below, including cross section schematics and opinions of probable cost.

## Sacrificial Rock Wall Concept

In addition to armoring the outboard pond berm face and installing sheet pile wall along the toe of the berms, this concept utilizes a sacrificial rock wall that is buried in front of the sheet pile wall to be installed at the outboard toe of the pond berms. The concept has less impact to the existing creek bank in its construction methods and ultimate footprint, limiting work area to the top of the terrace between the pond berm and the creek bank. The sacrificial rock wall, when exposed by future creek bank erosion, would slump in place to provide additional erosion resistance and reduce scour at the face of the sheet pile wall. Figure 5 below shows a cross section schematic of this bank stabilization concept. A large format conceptual cross section and opinion of probable construction cost for the Sacrificial Rock Wall concept is provided in **Appendix F**.

A total budget of approximately \$6.1 million is recommended for this alternative based on current material prices. This estimate includes 30% contingency on materials and labor for construction and an additional 30% markup on the construction cost for design, permitting and construction management and other project costs.



SOURCE: ESA

Goleta Sanitary District Climate Adaptation Plan

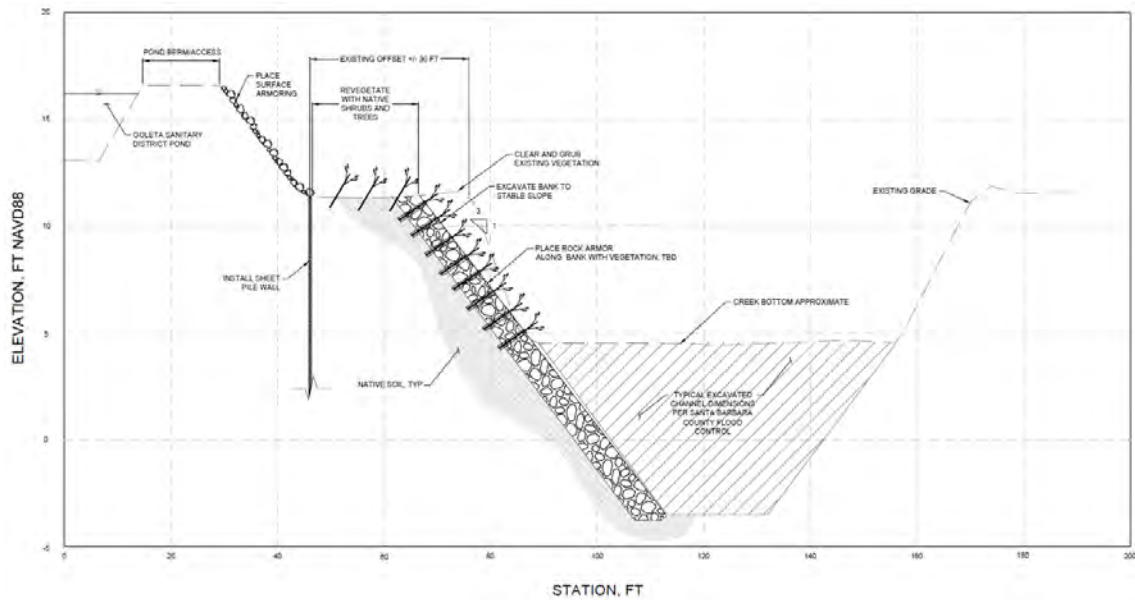
**Figure 5**  
San Pedro Creek bank stabilization conceptual cross section:  
Sacrificial Rock Wall

## Vegetated Rock Slope Protection Concept

In addition to armoring the outboard pond berm face and installing sheet pile wall along the toe of the berms, this concept utilizes vegetated rock slope protection constructed along the creek bank. The concept includes removing existing vegetation from the creek bank, grading the bank to a stable slope and exporting material, placing rock slope protection that is planted with willows and/or big salt brush and irrigated for 5 years during summer. Figure 6 below shows a cross section schematic of this bank stabilization concept. The lower limit of rock armoring on the

creek bank is based on typical sediment removal dimensions shown in recent dredging drawings provided by Santa Barbara County Flood Control (SBCFD 2019). A large format conceptual cross section and opinion of probable construction cost for the Vegetated Rock Slope Protection Concept is provided in **Appendix G**.

A total budget of approximately \$4.4 million is recommended for this alternative based on current material prices. This estimate includes 30% contingency on materials and labor for construction and an additional 30% allowance for design, permitting and construction management.



SOURCE: ESA

Goleta Sanitary District Climate Adaptation Plan

**Figure 6**  
San Pedro Creek bank stabilization conceptual cross section:  
Vegetated Rock Slope Protection

To better understand what vegetation species may be utilized in this concept, ESA assessed the existing conditions of the creek bank including vegetation makeup along the bank at District property and two nearby reference sites during a site visit on March 25, 2022. The existing creek bank vegetation along the District property includes the mousehole tree (*Myoporum laetum*, an invasive), quailbrush or big salt brush (*Atriplex lentiformis*), one non-native Tuna cactus (*Opuntia ficus-indica*), and Pickleweed (*Salicornia* sp.) at the bank toe. Figure 7 shows photos taken along the creek bank adjacent to the District ponds. Note that the bank appears steep but was vegetated for the areas that could be accessed.



SOURCE: ESA

Goleta Sanitary District Climate Adaptation Plan

**Figure 7**  
Field photos along San Pedro Creek Bank from March 25, 2022 site visit

Vegetation at two reference sites near the District property was assessed to determine whether willows are present in channels with apparently similar hydrologic conditions as the San Pedro Creek segment (tidally influenced with brackish waters). The two reference sites are summarized below.

- San Pedro Creek banks at S. Fairview Avenue and Olney Street: vegetation includes pickleweed, big saltbrush, Coyote brush (*Baccharis pilularis*), Arroyo willow (*Salix lasiolepis*), Black sage (*Salvia mellifera*).
- Atascadero Creek banks below the rock weir near the south end of Ward Drive: vegetation includes Pickleweed, Arroyo willow, Big saltbush

Since willows were observed at these two nearby reference sites, the arroyo willow species may be appropriate for the more extensive bank stabilization concept with vegetated rock armoring (Figure 6). Recent literature suggests that willows have some salt tolerance (Ferrus-Garcia et al 2002, Hangs et al 2011); however, we recommend further investigation of soil and water salinity at the District property and reference sites to determine the viability of willows. A combination of willows (for stabilization and visual barrier) and big saltbrush (for stabilization) may be an appropriate vegetation makeup for the vegetated rock slope protection element. If further study

finds that soil and/or water conditions would not support willows, big saltbrush and other salt tolerant natives could be utilized for rock slope vegetation.

## 5.2 Adaptation Measures for Future Study

Other additional adaptation measures not analyzed in this study were identified based on the vulnerability assessment. Some of these adaptation measures are already considered within District maintenance efforts. These adaptation measures are summarized below to facilitate further study in the District’s future planning efforts.

### 5.2.1 Collection System (Manholes, Pipes, Junctions)

Access structures in the District’s collection system will experience increased I&I with sea level rise resulting from regular tidal inundation and groundwater emergence as well as storm flooding events. Potential adaptation strategies to limit I&I for at-grade access structures include sealing and/or raising the structures above grade depending on the location (e.g. raising in open areas versus sealing on roadways).

Some pipes in the District’s collection system were recently lined (S. Wagner pers. comm.); however, other aged pipes in future tidal inundation and groundwater emergence zones may experience increased I&I with future sea level rise. The District may prioritize upgrades to collection lines in areas exposed to tidal inundation and/or groundwater in the future in conjunction with ongoing maintenance and upgrades to the wastewater collection system.

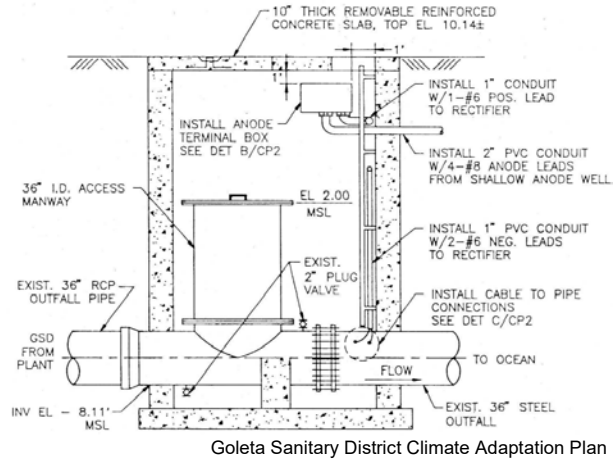
### 5.2.2 Outfall Pipe Access Vault

The outfall pipe access vault at Goleta Beach (Figure 8) is subject to coastal storm wave run-up under existing conditions and may be exposed to coastal erosion by the end of this century based on USGS CoSMoS projections for 6.6 feet sea level rise. Recent impacts to the outfall have occurred resulting in repairs, suggesting that the outfall access vault and pipe may become exposed to coastal erosion and wave run-up sooner than indicated by CoSMoS projections. Potential adaptation strategies may include removing the access vault. The District currently has an initial adaptation plan to remove and/or abandon the maintenance vault when needed (S. Wagner, District, personal communication, June 1, 2021). The outfall pipe landward of the vault could be stabilized and protected by installing joint restraints and or armoring the pipe (e.g., with reinforced concrete or other armoring) to protect against potential erosive forces from waves with future sea level rise.





SOURCE: ESA, Brown & Caldwell



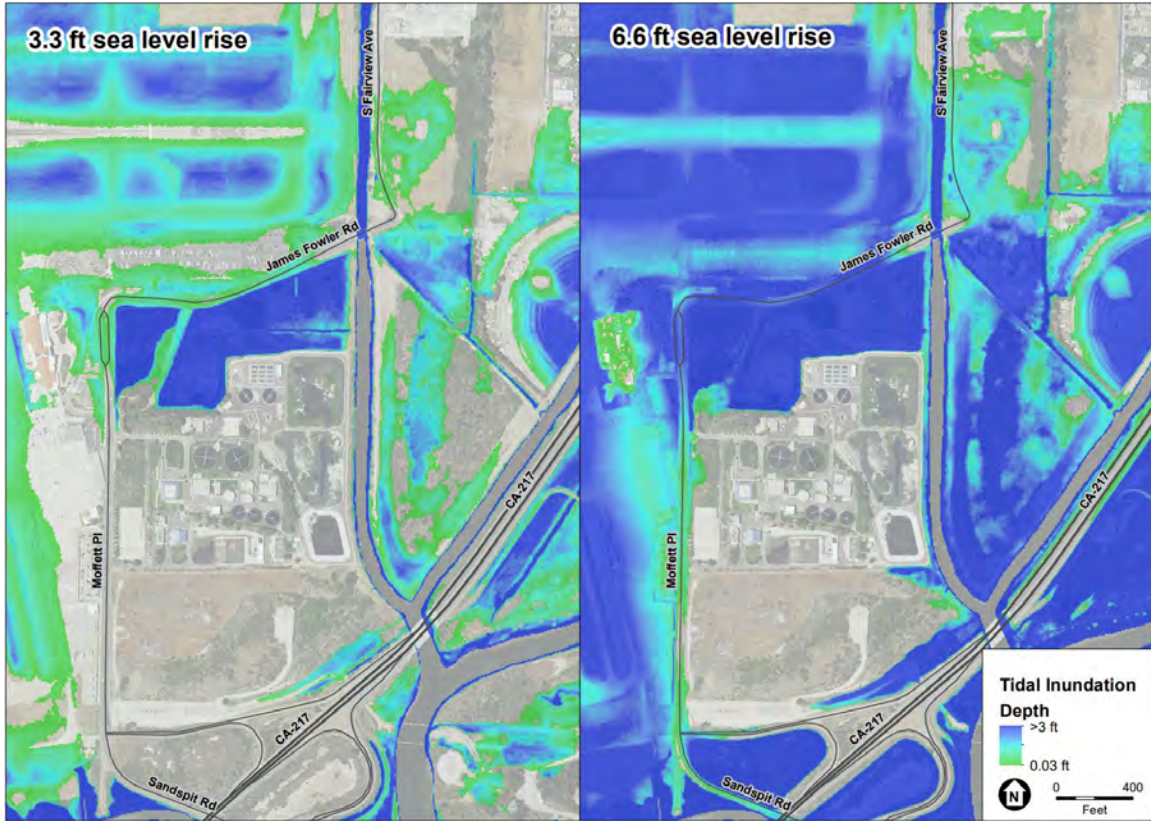
Goleta Sanitary District Climate Adaptation Plan  
**Figure 8**  
Beach Access Vault Photo (ESA 2021) and  
Cross Section (Brown and Caldwell 1994)

### 5.2.3 Austin Road Collection System

The District’s collection system on the blufftop properties of Austin Road may become exposed to coastal erosion by mid to late century. Adaptation strategies for the District will depend on private residence strategies. No District action is needed if residences armor the bluff. If residences on the seaward side of Austin Road retreat, the sewer will need to remain in service to serve residences on the landward side of Austin Road. If the road is also rerouted, the sewer may need to be rerouted behind those residences through easements. Other utilities and roadway coordination will be needed as this neighborhood area adapts to sea-level rise.

### 5.2.4 District WRRF access maintenance

Storm flooding in Goleta Slough may impair access to the District’s WRRF for hours or days during an extreme event today based on USGS CoSMoS maps for coastal flooding and FEMA maps for fluvial flooding. Access to the WRRF is also impaired by estuarine flooding with 2.5 or more feet sea-level rise. While sea-level rise may lead to more extensive storm flooding events in the future, it will also lead to more frequent inundation of low-lying roadways during normal tidal conditions. Figure 9 shows tidal inundation depths along Moffat Place and S James Fowler Road with 3.3 feet and 6.6 feet of sea level rise. Access to the WRRF may be impaired by regular tidal inundation with 3.3 feet of sea level rise. James Fowler Road may flood 10 inches to 14 inches during regular high tides with 3.3 feet of sea level rise. Flood depth during regular high tides increases to 3.3 feet deep with 6.6 feet of sea level rise. South Fairview Avenue will similarly flood 2 inches to 1.6 feet during high tides with 3.3 feet to 6.6 feet of sea-level rise, respectively. Sea-level rise planning should be coordinated with City of Santa Barbara, City of Goleta, Santa Barbara Airport and Santa Barbara County on raising these roads above future tidal inundation levels at a minimum. This adaptation measure may be addressed in coordination with other adaptation in Goleta Slough (e.g. Santa Barbara Airport).



SOURCE: USGS, ESRI

Goleta Sanitary District Climate Adaptation Plan

**Figure 9**  
Future tidal inundation of District WRRF access route  
along S Fairview Ave and Moffett Pl

# CHAPTER 6

## Conclusions and Next Steps

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The following sections summarize the conclusions of the vulnerability assessment (Chapter 4) and recommended next steps for the District regarding sea level rise adaptation planning and implementation (Chapter 5). Vulnerabilities are discussed in terms of existing conditions and future sea level rise considering the extreme risk aversion curve by OPC (2018) that projects 2.5 feet of sea level rise to occur around 2050 and 6.6 feet of sea level rise to occur around 2080.

### 6.1 Conclusions

The District WRRF is located on relatively high ground in the Goleta Slough Basin but some facilities around the WRRF are vulnerable to sea level rise and related flooding and erosion hazards. Findings are summarized below for each hazard category evaluated in this study.

Flooding from coastal, fluvial and estuarine sources will expose a number of sewer structures (manholes, inlets, etc.) under existing conditions and worsen with sea level rise. Floodwater seepage through unsealed manholes and other structures will lead to increased flow rates within the collection system, potentially beyond the capacity of the collection system to convey wastewater. This could result in sanitary sewer overflows (SSOs) and regulatory action against the District. Increased flows of wastewater to the WRRF can result in higher pumping and treatment costs. During coastal and estuarine flooding and tidal inundation exposure events, increased levels of chlorides and total dissolved solids (TDS) in WRRF influent flows could potentially impact the treatment process and quality of final effluent and recycled water.

Increased groundwater levels could result in impacts to the Districts treatment and storage facilities including clarifiers, treatment/storage ponds, below grade reclaimed water storage tanks and chlorine contact tanks. If these facilities are not full, there is a potential risk of floatation that increases with sea level rise. Some facilities (clarifiers, ponds) already have pressure release valves on their bottoms to mitigate this floatation risk under existing conditions.

#### 6.1.1 Coastal Hazards

Chronic **shoreline erosion** may impact the outfall maintenance vault at Goleta Beach and unrestrained outfall pipe landward of the vault before 2080, while extreme storm erosion events may expose the outfall vault and unrestrained pipe sooner. A failure of the existing unrestrained pipe segments landward of the maintenance vault would likely result in a substantial spill of treated wastewater at the point of joint separation. Minimal ability to divert treated wastewater flows and challenging repair conditions would likely cause a spill to extend over a significant duration.

Bluff top sewer infrastructure that runs along Austin Rd. is vulnerable to **bluff erosion** by 2050. While not examined in detail for this study, bank erosion along San Pedro Creek east of the District ponds has the potential to destabilize the perimeter berms of the pond.

Chronic **tidal inundation** from spring tides will inundate sewer structures and may complicate access to and maintenance of several sewer pipes by 2050 as tide levels rise around Goleta Slough. Similarly, structures in low lying areas around Goleta Slough and tributary creeks not already exposed to emergent **groundwater** may become exposed with higher sea levels while collection pipes, junctions and other underground features may be subjected to shallow groundwater levels. Tidal inundation also may limit access to the WRRF with 2.5 feet sea level rise and greater. Elevated groundwater levels around the recycled water storage tank and chlorine contact basin will lead to buoyancy risks with 6.6 feet of sea level rise and potentially sooner. Extreme **coastal flooding** from storm surge may expose 50 structures under existing conditions and over 100 structures by 2080. Coastal flooding may also impact access to the WRRF from the north under existing conditions and access to the Firestone Road lift station with 6.6 feet sea level rise. The Goleta Beach outfall maintenance vault and pipe are exposed to extreme coastal storm wave run-up under existing conditions and may experience impacts of increasing severity as sea level rises.

In summary, consequences from rising groundwater, tidal inundation and flooding hazards include increased I&I and related higher pumping and treatment costs as well as floatation issues for treatment and storage facilities and exposure to erosion.

### 6.1.2 Fluvial Flooding

Firestone Road Pump Station and 341 other GSD structures are vulnerable to flooding from the current 100-year fluvial extents mapped by FEMA. Flood seepage through unsealed manholes and other structures will lead to increased flow rates within the collection system, potentially beyond the capacity of the collection system to convey wastewater. This could result in SSOs and regulatory action against the District. Increased flows of wastewater to the WRRF can result in higher pumping and treatment costs. Access to Firestone Road lift station and the WRRF may be limited during extreme fluvial flooding events.

### 6.1.3 Estuarine Flooding

The Goleta Slough modeling for this study assumes the lagoon mouth is lowered on an emergency basis ahead of significant precipitation events. If the mouth isn't breached, the extents of and impacts from estuarine flooding would be greater than reported in this study. Under existing conditions, four GSD structures are exposed to extreme estuarine flooding in Goleta Slough. The number increases to between 39 and 69 by 2080 depending on how the mouth is managed in the future with sea level rise.

## 6.2 Next Steps

The following next steps will support the District to increase its resilience to sea level rise and associated flooding and erosion hazards.

## 6.2.1 Groundwater monitoring

The District should consider establishing groundwater monitoring wells around the plant and coordinate with other agencies around the Goleta Slough basin to establish new or track existing groundwater monitoring wells. Groundwater level monitoring will enable the District to plan and respond to rising groundwater levels to prioritize collection line maintenance, plan and design for buoyancy adaptation at the recycled water underground storage tank, chlorine contact basin and other below-grade facilities at the plant.

## 6.2.2 Geotechnical investigation(s)

The District should consider conducting geotechnical investigation to support buoyancy risk assessment and adaptation at the recycled water underground storage tank and chlorine contact basin. A separate geotechnical investigation could be conducted to support a feasibility study of concepts for the San Pedro Creek bank stabilization that could identify trigger point and lead times for implementation and refine the concept for the sheet pile wall component of the stabilization concepts developed in this study.

## 6.2.3 Agency Coordination for Goleta Slough Adaptation

The District should consider coordinating adaptation planning for the Goleta Slough area with other agencies including UCSB, SB Airport, Goleta West Sanitary District. Coordination topics include:

- Sea level rise assessments and adaptation/maintenance planning for other districts sending effluent to the District treatment plant.
- Roadway adaptation to maintain resilient access to the District plant, Airport and general area.

## 6.2.4 Floodproofing Firestone Road Pump Station

The District may consider design and permitting for floodproofing for the Firestone Road Pump Station to increase resilience to existing fluvial flooding and future coastal flooding with sea level rise. We recommend that future lift station flood proofing design for fluvial flood resilience includes updated hydraulic modeling of the fluvial flood event in Goleta Slough basin for existing conditions and future sea level rise and climate change driven changes in precipitation.

## 6.2.5 Erosion Monitoring

The District should consider monitoring coastal erosion at Goleta Beach and blufftop adaptation at Austin Road as described below:

- Monitor shoreline erosion at the District outfall access vault to support adaptation triggers for erosion protection or removal of the access vault and potentially stabilization of the outfall segment landward of the vault.

- Coordinate with Austin Road blufftop property owners regarding adaptation actions for bluff erosion. Wastewater collection infrastructure may need to be reconfigured if blufftop properties undergo managed retreat.

## 6.2.5 San Pedro Creek Bank Stabilization Feasibility Study

The next step to assess options for creek bank stabilization at San Pedro Creek along the District ponds is to conduct a feasibility assessment that may include a detailed biologic and topographic survey, hydraulic modeling of creek flood flows, and geotechnical investigation of the creek bank and pond berm stability.

# CHAPTER 7

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## Acknowledgements

This report was prepared by:

James Jackson, PE (ESA)

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Nick Garrity, PE (ESA)

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Key contributions were made by:

Laura Romano DeFazio (District)

John Crisman (District)

Luis Astorga (District)

Steve Wagner (District)

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# CHAPTER 8

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## References

Astorga, Luis, District Collection System Manager. Personal communication, November 1, 2021.

Brown and Caldwell 1994. Goleta Sanitary District Armor Rock Protection For Ocean Outfall Design Drawings.

California Coastal Commission, 2015, California Coastal Commission Sea level Rise Policy Guidance: Interpretive Guidelines for Addressing Sea level Rise in Local Coastal Programs and Coastal Development Permits, Adopted on August 12, 2015, accessed online: <http://www.coastal.ca.gov/climate/slrguidance.html>.

California Coastal Commission, 2021. Critical Infrastructure at Risk: Sea Level Rise Planning Guidance for California’s Coastal Zone. Final Adopted Guidance, November 17 2021. Accessed online: <https://www.coastal.ca.gov/climate/slr/vulnerability-adaptation/infrastructure/>

Environmental Science Associates (ESA) 2015a. Goleta Slough Inlet Modeling Study Memorandum Prepared for the City of Santa Barbara. April 6, 2015. ESA Project D211721.01.

Environmental Science Associates (ESA) 2015b. Goleta Slough Area Sea Level Rise and Management Plan. Prepared for the Goleta Slough Management Committee, August 2015. ESA Project D211721.00

Environmental Science Associates (ESA) 2015c. Santa Barbara County Coastal Hazard Modeling and Vulnerability Assessment Technical Methods Report. Prepared for County of Santa Barbara. November 18, 2015. ESA Project D130526.00.

Federal Emergency Management Agency 2018. National Flood Hazard Layer. DFIRM Panel 06083C1362H, accessible online at <https://msc.fema.gov/nfhl>

Ferrus-Garcia, A.; Vadheim, C.M.; Roberts, J. 2002. Salt tolerance and remediation potential of *Salix lasiolepis*: a native California willow. (Abstracts). *The Free Library* (August, 1), [https://www.thefreelibrary.com/Salt tolerance and remediation potential of Salix lasiolepis: a...-a090750271](https://www.thefreelibrary.com/Salt+tolerance+and+remediation+potential+of+Salix+lasiolepis:+a...-a090750271)

Griggs, G., Árvai, J., Cayan, D., DeConto, R., Fox, J., Fricker, H.A., Kopp, R.E., Tebaldi, C., Whiteman, E.A. (California Ocean Protection Council Science Advisory Team Working Group), 2017, Rising Seas in California: An Update on Sea level Rise Science, California Ocean Science Trust, April 2017.

Hangs R. D., Schoenau J. J., Van Rees K. C. J., and Steppuhn H. 2011. Examining the salt tolerance of willow (*Salix* spp.) bioenergy species for use on salt-affected agricultural lands. *Canadian Journal of Plant Science*. 91(3): 509-517. <https://doi.org/10.4141/cjps10135>



John Frye, Santa Barbara County Flood Control Engineering Manager. Personal communication August 26, 2021.

Ocean Protection Council (OPC), 2013, State of California Sea level Rise Guidance Document, Developed by the Coastal and Ocean Working Group of the California Climate Action Team (CO-CAT), with science support provided by the Ocean Protection Council’s Science Advisory Team and the California Ocean Science Trust, March 2013 update, accessed online:  
[http://www.opc.ca.gov/webmaster/ftp/pdf/docs/2013\\_SLR\\_Guidance\\_Update\\_FINAL1.pdf](http://www.opc.ca.gov/webmaster/ftp/pdf/docs/2013_SLR_Guidance_Update_FINAL1.pdf).

Ocean Protection Council (OPC), 2018, State of California Sea level Rise Guidance 2018 Update, Prepared by the California Natural Resources Agency and the California Ocean Protection Council, March 2018.

O’Neill, A.C.; Erikson, L.H.; Barnard, P.L.; Limber, P.W.; Vitousek, S.; Warrick, J.A.; Foxgrover, A.C.; Lovering, J. Projected 21st Century Coastal Flooding in the Southern California Bight. Part 1: Development of the Third Generation CoSMoS Model. J. Mar. Sci. Eng. 2018, 6, 59.

Santa Barbara County Flood Control and Water Conservation District, 2019. Goleta Slough Dredging Project 2019.

United States Geological Survey (USGS) 2018. Coastal Storm Modeling System (CoSMoS) for Southern California, v3.0, Phase 2. Published May 13, 2018.

Wagner, Steve, District General Manager/District Engineer. Personal communication, June 1, 2021.

# Goleta Sanitary District Climate Adaptation Plan

## Appendix A: Goleta Slough Quantified Conceptual Model

date September 3, 2021

to Project File

from D. Behrens, PhD PE; Yashar Rafati, PhD

subject QCM Modeling of the Goleta Slough Lagoon for Goleta Sanitary District Climate Adaptation Plan

This memorandum describes the quantified conceptual model used to estimate extreme water levels in Goleta Slough and results. The QCM model was run for existing and future sea level rise scenarios for the Goleta Sanitary District Climate Adaptation Plan.

### 1. QCM Model description and simulation cases

The Quantified Conceptual Model (QCM) was proposed as a simple framework predicting the long-term evolution of lagoon mouth and lagoon water levels (Behrens et al. 2015). This framework uses empirical data and simple parameterizations to quantify the hydrology of lagoon, coastal influences to the beach, and hydraulics of the mouth. Here, we used QCM for an 8-year simulation of Goleta Slough Lagoon considering existing conditions, as well as mid-century (2.5 feet) and late-century (6.6 feet) sea level rise scenarios (see Table 1). Due to the existing measures in lagoon management at Goleta Slough the lagoon thalweg elevation is limited to 9 feet above NAVD88 implemented by regular breaching of the lagoon. One of the challenges that we anticipated in the lagoon management under sea level rise was the cost of keeping up with the same limit of thalweg elevation. Therefore, adaptive breaching of the lagoon to the projected sea level rise was also considered in this study. Here, simulations of sea level rise scenarios are performed by assuming existing breaching (thalweg elevation limited to 9 feet above NAVD88) and adaptive breaching (thalweg elevation limited to 9 feet above NAVD88 + SLR).

Table 1: Quantified Conceptual Model simulation cases

Case	SLR	Breaching
1	0 feet (existing)	Existing
2	2.5 feet	Existing
3	6.6 feet	Existing
4	2.5 feet	Adaptive
5	6.6 feet	Adaptive

## 2. QCM Model results

Lagoon hydrology and morphology at Goleta Slough were simulated for 8 years using lagoon water level data previously provided to ESA and nearshore wave conditions (10 m water depth) provided by CDIP from 2010 to 2018. Figures 1 through 5 show the simulation results of cases 1 through 5 (see Table 1). The lowest and highest levels of ocean tides, and simulated lagoon water levels and thalweg elevations are reported in Table 2.

Case 1 is intended to be a hindcast of observations in the lagoon to understand the sensitivity of the lagoon to coastal and fluvial conditions, and to provide an understanding of the level of uncertainty in model predictions. The model hindcast for this period is described more extensively in prior work by ESA PWA (2015). Generally, the model captures the seasonality of mouth closure behavior and seasonal water levels caused by transitions between mouth open and closed periods, although at the daily or hourly scale, it does not capture all events. For Case 1 (0 feet SLR, existing breaching, Figure 1) the model predicts five long-term (order of several months to a few years) mouth closure events, which aligns with measurements of lagoon water levels. Interestingly, for this case the highest lagoon water levels and thalweg elevations occur at the end of closure events right before the onset of the breaching events. This is not uncommon in coastal lagoons in California, and results from the fact that the beach is typically highest after several months of mouth closure, meaning that the highest water levels that are often observed occur at the time that the lagoon has filled sufficiently with trapped freshwater input behind the closed beach to the level that it can overtop the beach and erode a new mouth.

The remaining cases, involving sea-level rise, reflect the two major competing effects of rising ocean tides over time due to sea level rise:

- 1) **Delayed closure events:** As tide levels rise, accretion in the lagoon may offset some sea-level rise, but is not likely to keep pace with accelerated late-century rates (Thorne et al. 2021), meaning that tidal marsh areas would eventually become part of the tidal prism (the intertidal volume that moves through the lagoon mouth on every tidal cycle). This greater prism means that the mouth will have faster currents, delaying the onset of seasonal closure events.
- 2) **Delayed breach events:** The beach berm is expected to shift vertically at the same pace as sea level rise. Since accretion in the lagoon is not expected to keep pace, this means that the lagoon will have a larger volume behind the beach, so freshwater inflows will take longer to fill the lagoon to breaching elevations. This could allow the beach more time to build, potentially further prolonging closure events.

For Case 2 (2.5 feet SLR, existing breaching, Figure 2) two long-term mouth closure events are predicted between late 2012 and early 2014 and between early 2015 and late 2015, which are concurrent with the closure events of Case 1 (Figure 1). Comparison of Case 1 (0 feet SLR) and Case 2 (2.5 feet SLR) shows that the lagoon water levels and thalweg heights are higher in Case 2 which indicates that lagoon adapts itself with SLR of 2.5 feet based on the model results. Interestingly, results of 6.6 feet SLR (Case 3) predicts the lagoon to be open during the entire simulation interval based on the existing breaching (thalweg elevation limited to 9 feet above NAVD 88) with the tidal elevations having the highest levels compared with the lagoon water levels and thalweg elevations. Moreover, for this case the peak values of lagoon water levels (13.4 feet above NAVD88) are close to those of ocean tides (14 feet above NAVD88) indicating that lagoon water levels increase with sea level rise.

In the case of adaptive breaching under 2.5 feet SLR (Case 4, Figure 4), three long-term mouth closure events were predicted by the model, where the first closure is concurrent with the closure predicted for Case 2 (between late

2012 and early 2014). As expected the maximum thalweg elevation for adaptive breaching Case 4 (11.05 feet above NAVD88) was higher than the value predicted for existing breaching Case 2 (9 feet above NAVD88). Furthermore, in Case 4 the lagoon water levels peak higher than 10 feet above NAVD at the onset of breaching events where lagoon water levels are mainly below 10 feet in Case 2. However, model prediction of maximum lagoon water levels are very close for Case 2 and Case 4 (11.15-11.2 above NAVD88). Comparison of the existing and adaptive breaching strategies under 2.5 feet SLR (Cases 2 and 4) further indicates that the adaptive breaching might be more cost-effective since the lagoon water levels are in similar ranges (peaks mainly between 8 and 10 feet above NAVD88) for both cases. Model results found to have a higher sensitivity to the breaching strategies under 6.6 feet SLR (compare Figure 3 and Figure 5). For adaptive breaching under 6.6 feet SLR (Case 5, Figure 5) model predicts a five-year mouth closure event between 2012 and 2017 which was not predicted for existing breaching (Case 3, Figure 3). Accordingly, the maximum thalweg elevation for the adaptive breaching (Figure 5) was calculated as 15.2 feet above NAVD88 which is significantly higher than the maximum thalweg elevation of 9 feet for existing breaching (Figure 3) under 6.6 feet SLR. The maximum lagoon water level under 6.6 SLR with adaptive breaching (Figure 5) was predicted as 15.2 feet above NAVD88 occurring at the end of the 5-year closure event which is higher than the maximum lagoon water level predicted for existing breaching as 13.4 feet above NAVD88 (Figure 3). For these cases model results further indicate that lagoon mouth opening can mitigate the lagoon flood level as differences between the level of ocean tides and lagoon water levels are significantly higher with adaptive breaching during the mouth closure (up to about 7.6 feet between 2012 and 2017, Figure 5) compared to those with existing breaching during the mouth opening (up to about 2.5 feet between 2012 and 2015, Figure 3).

Table 2: Ranges of modeled lagoon water levels and thalweg elevations (feet NAVD88)

Case	SLR	Breaching	Ocean Tides	Modeled Lagoon Water Levels	Modeled Thalweg Elevations
1	0 feet (existing)	Existing	-2.7 – 7.4	0.95 – 10.1	1.0 – 8.6
2	2.5 feet	Existing	0.1 – 9.9	3.5 – 11.2	3.5 – 9
3	6.6 feet	Existing	4.2 – 14.0	8.4 – 13.4	7.6 – 9
4	2.5 feet	Adaptive	0.1 – 9.9	3.5 – 11.2	3.5 – 11.0
5	6.6 feet	Adaptive	4.2 – 14.0	5.5 – 15.2	7.6 – 15.2

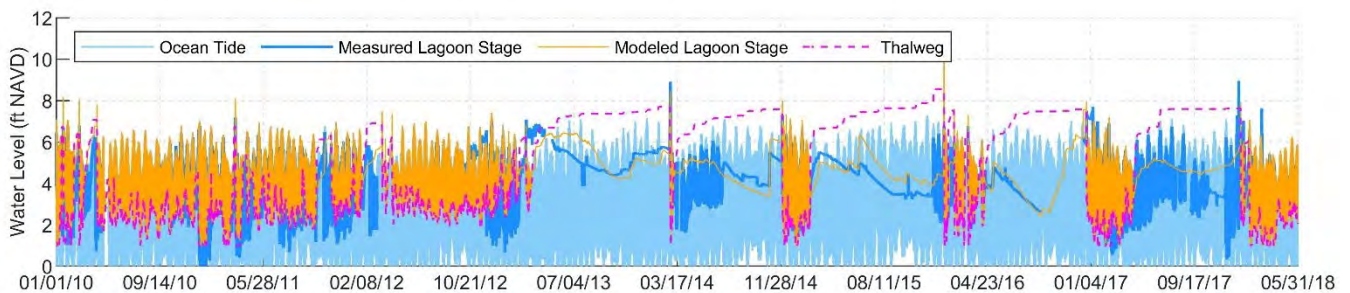


Figure 1: QCM model results of Case 1 (0 feet SLR, existing breaching)

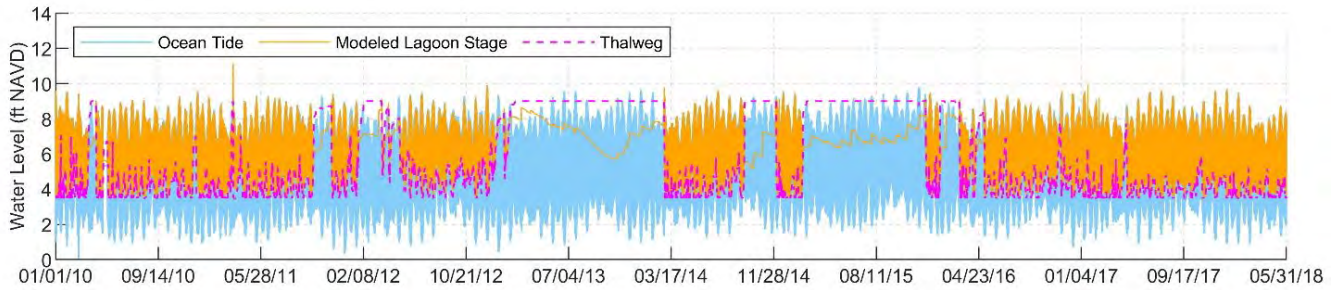


Figure 2: QCM model results of Case 2 (2.5 feet SLR, existing breaching)

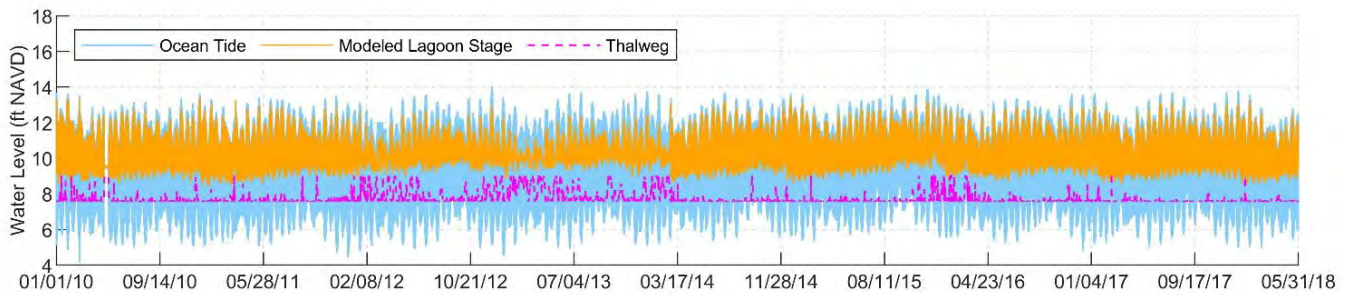


Figure 3: QCM model results of Case 3 (6.6 feet SLR, existing breaching)

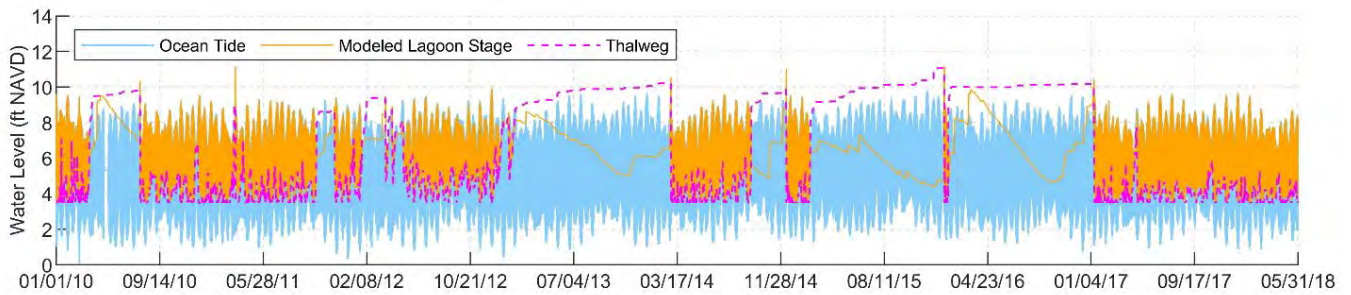


Figure 4: QCM model results of Case 4 (2.5 feet SLR, adaptive breaching)

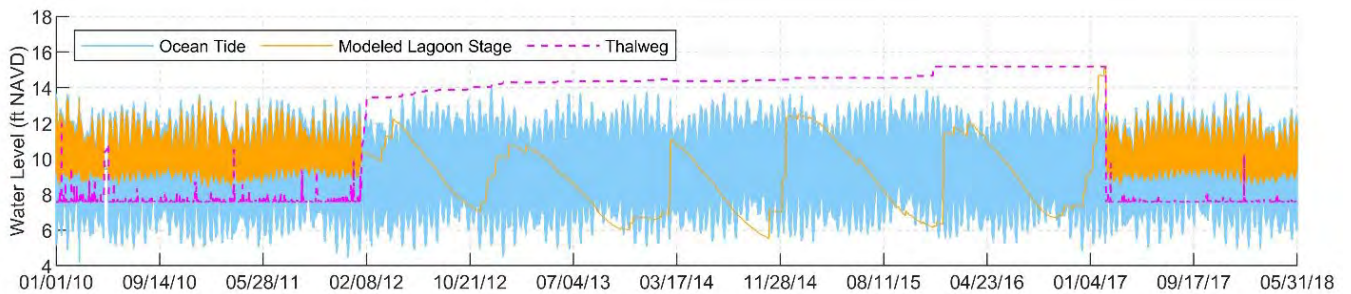


Figure 5: QCM model results of Case 5 (6.6 feet SLR, adaptive breaching)

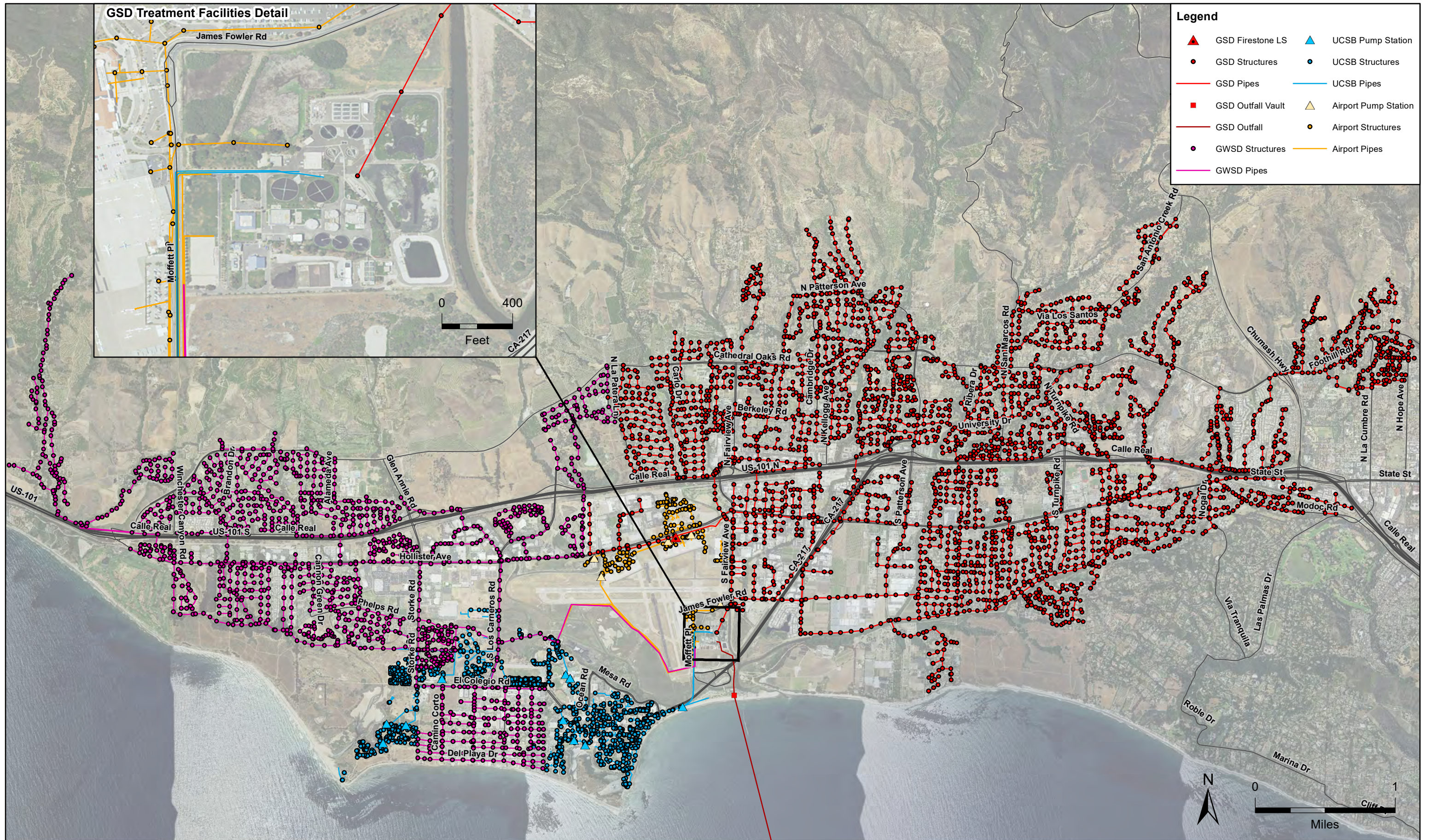
## References

Behrens, D., Brennan, M., and B. Battalio. 2015. A Quantified Conceptual Model of Inlet Morphology and Associated Lagoon Hydrology. *Shore and Beach*.

ESA PWA. 2015. Goleta Slough Inlet Modeling Study. Prepared for the Goleta Slough Management Committee . Funded by Santa Barbara Coastal Resource Enhancement Fund.

Thorne, K., Buffington, K. J., Jones, S. F., and J. Largier. 2021. Wetlands in intermittently closed estuaries can build elevations to keep pace with sea-level rise. *Estuarine, Coastal and Shelf Science*.

# Goleta Sanitary District Climate Adaptation Plan - Appendix B

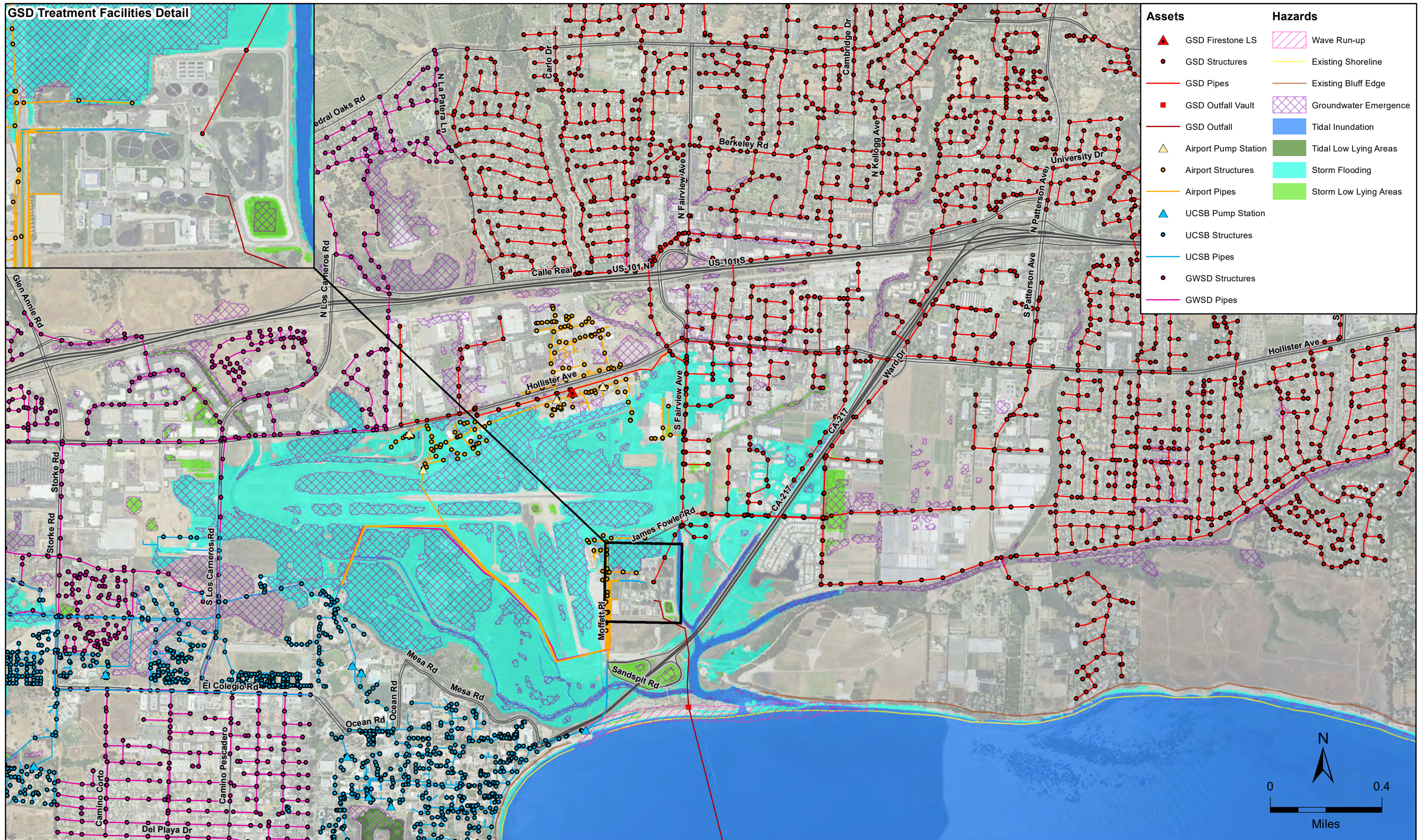


SOURCE: ESA/SB County, USGS, NAIP, GSD, Santa Barbara Airport, UCSB, GWSD

Goleta Sanitary District Climate Adaptation Plan . D202100303.00

**Figure B1**  
Existing Assets Map

# Goleta Sanitary District Climate Adaptation Plan - Appendix C



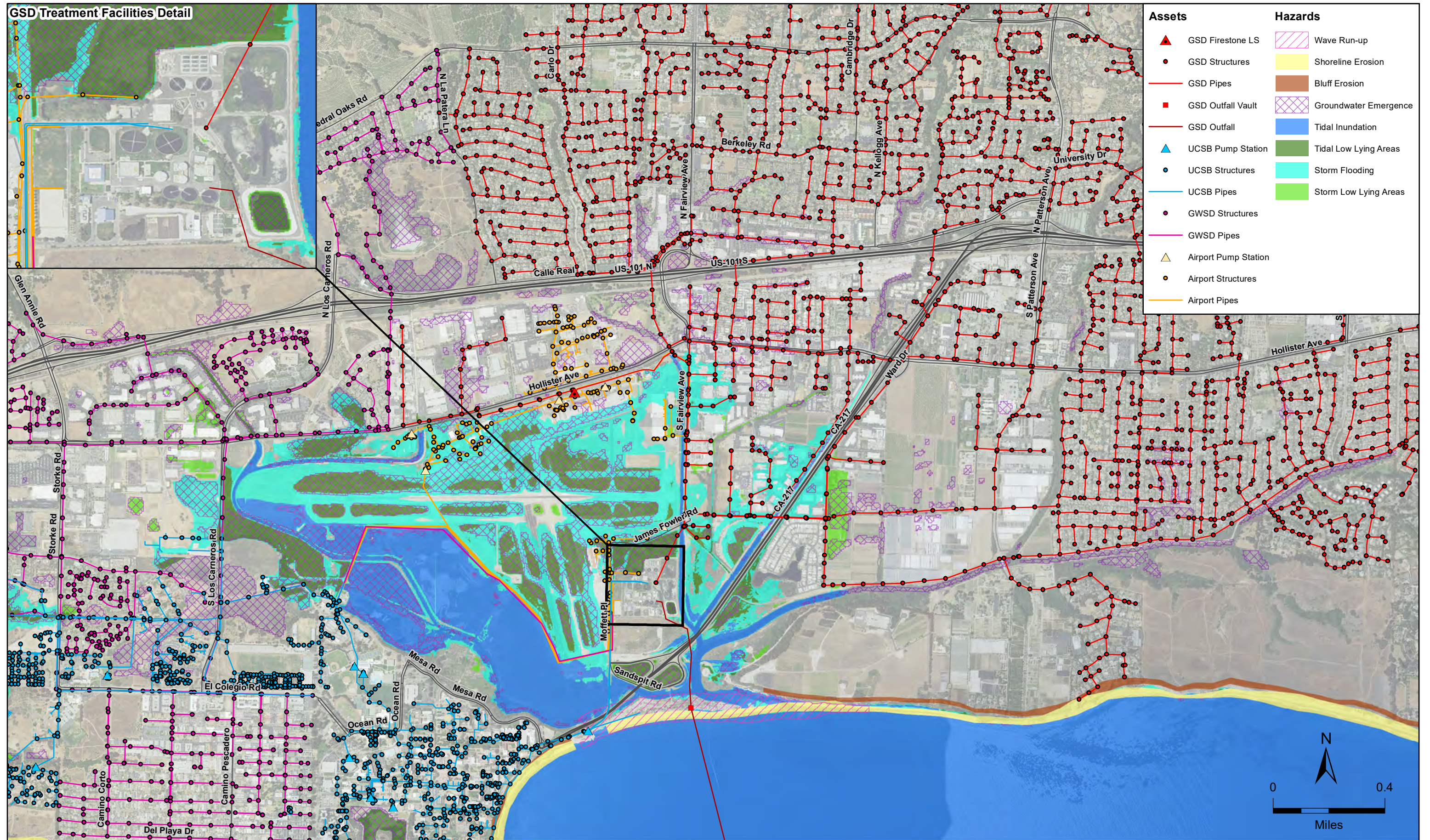
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Goleta Sanitary District Climate Adaptation Plan . D202100303.00

**Figure C1**  
Coastal Hazard Exposure Map (Existing Conditions, 0 ft Sea Level Rise)



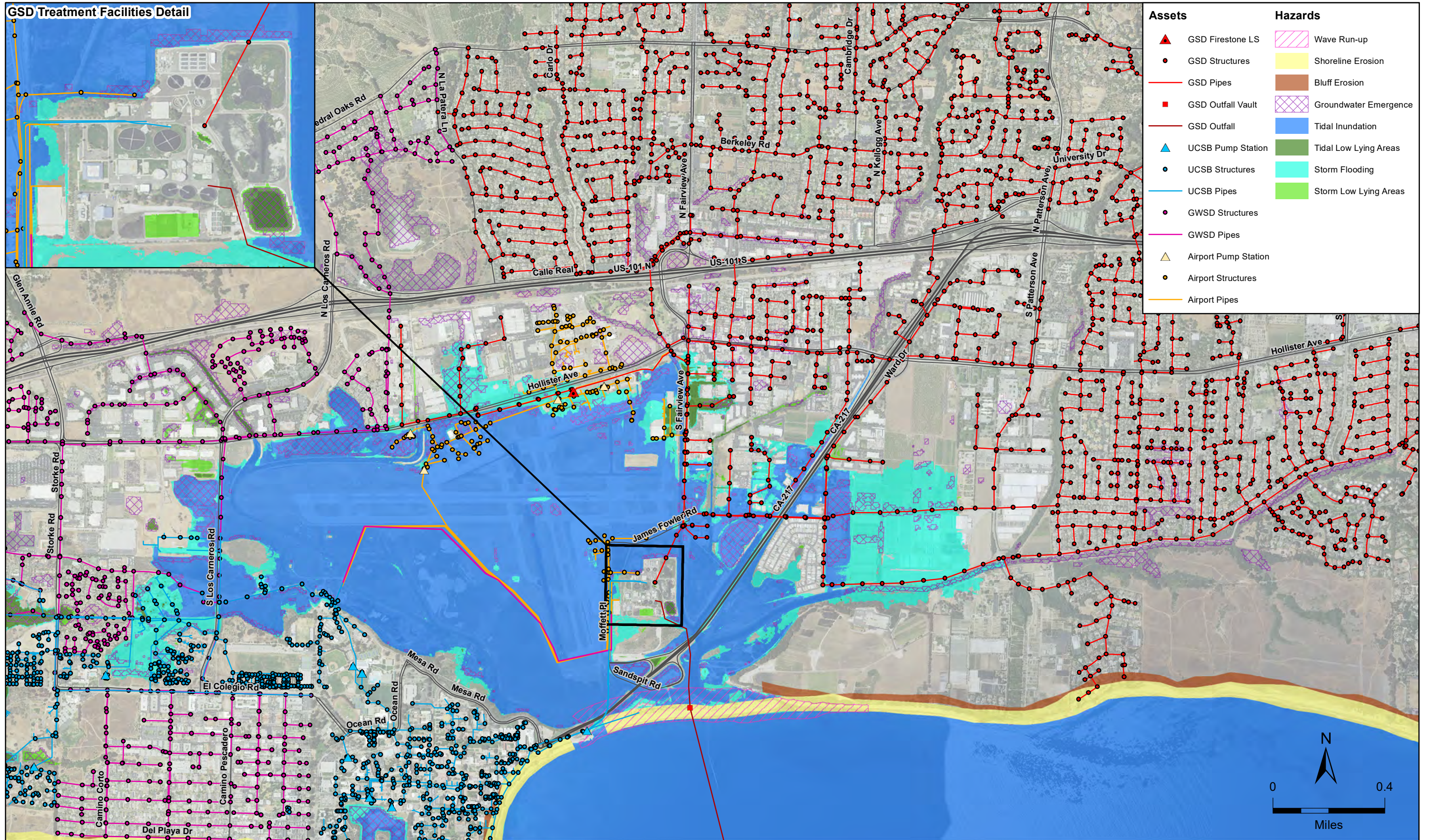
# Goleta Sanitary District Climate Adaptation Plan - Appendix C



SOURCE: ESA/SB County, USGS, NAIP, GSD, Santa Barbara Airport, UCSB, GWSD

Goleta Sanitary District Climate Adaptation Plan . D202100303.00  
**Figure C2**  
 Coastal Hazard Exposure Map (2.5 ft Sea Level Rise)

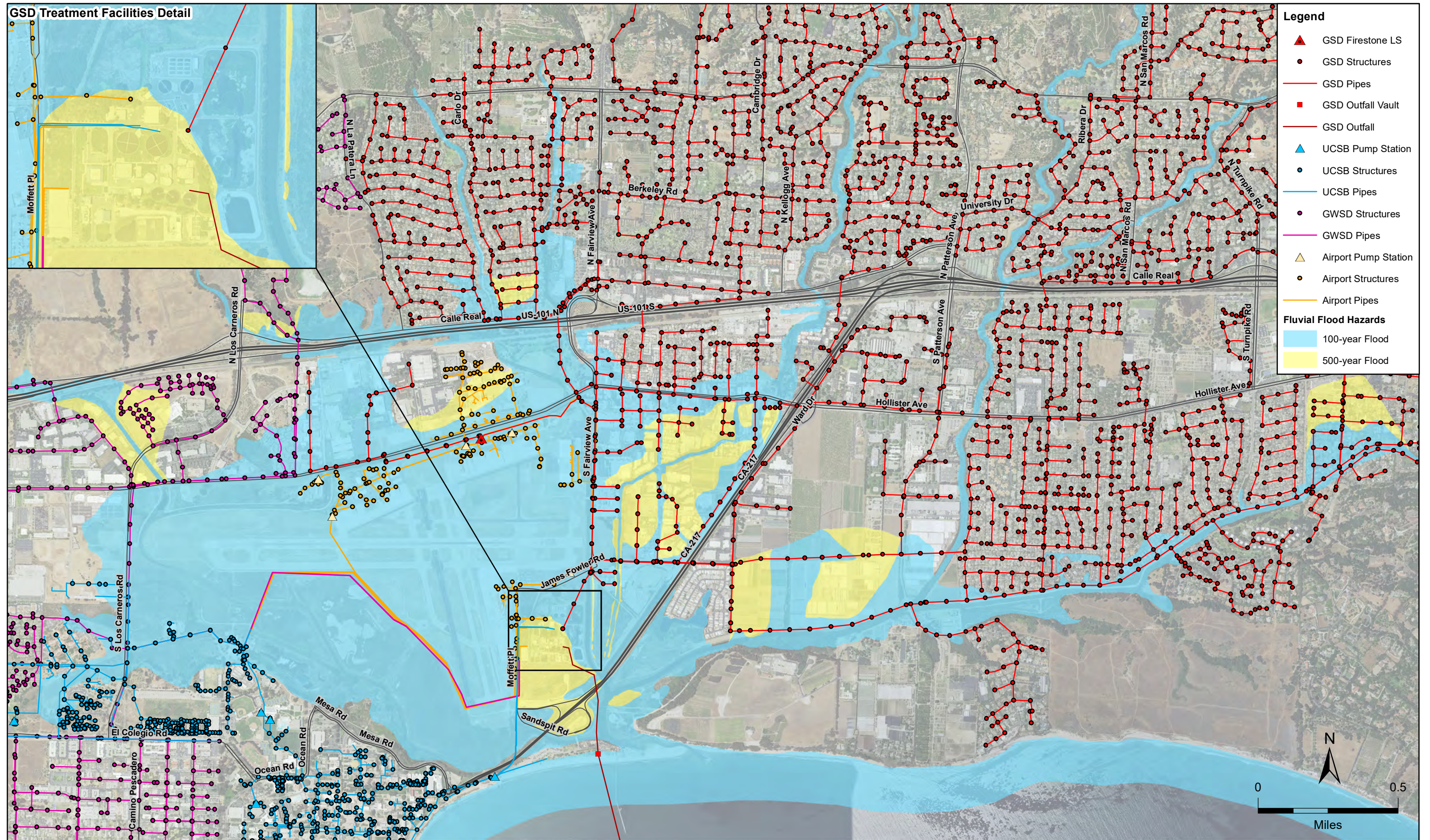
# Goleta Sanitary District Climate Adaptation Plan - Appendix C



SOURCE: ESA/SB County, USGS, NAIP, GSD, Santa Barbara Airport, UCSB, GWSD

Goleta Sanitary District Climate Adaptation Plan . D202100303.00  
**Figure C3**  
 Coastal Hazard Exposure Map (6.6 ft Sea Level Rise)

# Goleta Sanitary District Climate Adaptation Plan - Appendix D



SOURCE: FEMA, NAIP, GSD, Santa Barbara Airport, UCSB, GWSD

Goleta Sanitary District Climate Adaptation Plan . D202100303.00

**Figure D1**  
Fluvial Flood Hazard Exposure Map - Existing Conditions

# Goleta Sanitary District Climate Adaptation Plan - Appendix E

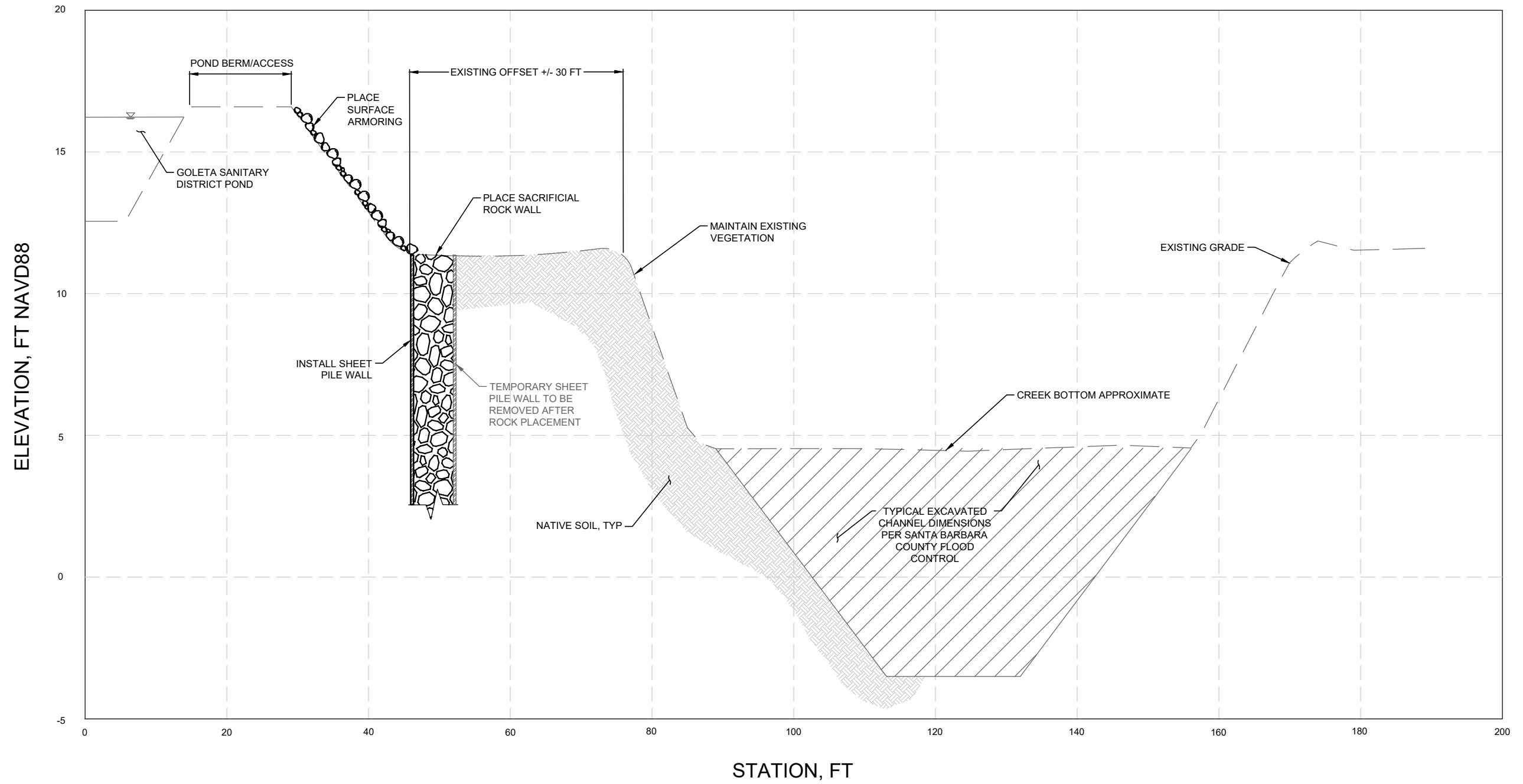


SOURCE: ESA, NAIP, GSD, Santa Barbara Airport, UCSB, GWSD

Goleta Sanitary District Climate Adaptation Plan . D202100303.00

**Figure E1**  
Estuarine Flooding Hazard Exposure Map

# Goleta Sanitary District Climate Adaptation Plan - Appendix F



NOT TO SCALE

DWG: P-101 CAD/2021xxxxx0202100303.00 - Goleta Sanitary District Climate Adaptation Plan/DWG/TYPICAL SECTION.dwg USER: James Jackson PLOT DATE: 3/28/2022 1:41:56 PM



# Goleta Sanitary District Climate Adaptation Plan - Appendix F



## OPINION OF PROBABLE CONSTRUCTION COST

Project: Goleta Sanitary District Climate Adaptation Plan

Prepared By/Checked By: NAB/NEP

Date Prepared: 4/1/2022

Facility: San Pedro Creek Bank Stabilization - Rock Wall Protection

MNS Proj. No. GOLSD.210163

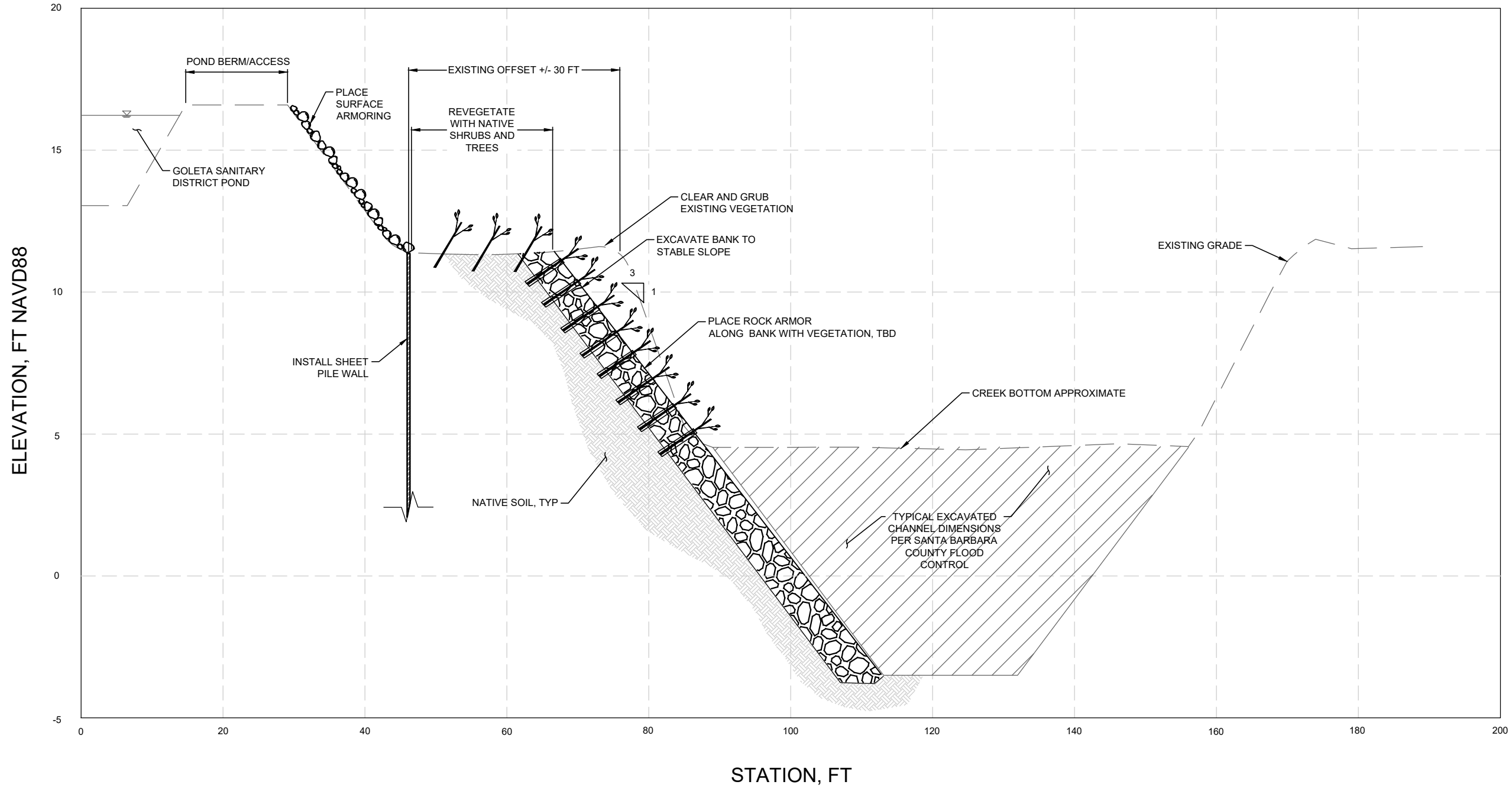
Estimate Type:  Conceptual  
 Preliminary (w/o plans)  
 Design Development @  
 Construction  
 Change Order  
\_\_\_\_\_ % complete

Item No.	Description	Qty.	Units	Materials		Installation		Sub-Contractor		Total
				\$/Unit	Total	\$/Unit	Total	\$/Unit	Total	
1	Mobilization/Demobilization	1	LS	\$0	\$0	\$150,000	\$150,000			\$150,000
2	Access Road Improvements	1	LS	\$25,000	\$25,000	\$25,000	\$25,000			\$50,000
3	Clear and Grub Vegetation	1,160	LF	\$25	\$29,000	\$25	\$29,000			\$58,000
4	Rock Armor Surface Stabilization, 6" Thickness, Top of Bank (B)	430	CY	\$45	\$19,350	\$40	\$17,200			\$36,550
5	Sheet Pile Wall, 20' Depth (C)	46,400	SF	\$36	\$1,670,400	\$21	\$974,400			\$2,644,800
6	Excavate, Dry, Transport, Dispose of Bank Material, Between Sheet Piles	1,718	CY	\$20	\$34,360	\$25	\$42,950			\$77,310
7	Rock Wall Stabilization (A)	1,718	CY	\$42	\$72,156	\$20	\$34,360			\$106,516
	Subtotals				\$1,850,266		\$1,272,910		\$0	\$3,123,176
	Division 1 Costs	@	2.00%		\$37,005		\$25,458		\$0	\$62,464
	Subtotals				\$1,887,271		\$1,298,368		\$0	\$3,185,640
	Taxes - Materials Costs	@	7.75%		\$143,396					\$143,396
	Subtotals				\$2,030,667		\$1,298,368		\$0	\$3,329,035
	Contractor OH&P	@	15.00%		\$277,540				\$0	\$277,540
	Subtotals				\$2,308,207		\$1,298,368		\$0	\$3,606,575
	Estimate Contingency	@	30.00%							\$1,081,973
	Subtotals									\$4,688,548
	<b>Total Estimate</b>									<b>\$4,690,000</b>

- (A) Caltrans 60 Pound Class II Rock. 2' Thickness.
- (B) Caltrans 10 Pound Class II Rock. 6" Thickness.
- (C) Type Nucor NZ 19 Sheeting

# Goleta Sanitary District Climate Adaptation Plan - Appendix G

DWG: P:101 CAD:2021xxxxx|D202100303.00 - Goleta Sanitary District Climate Adaptation Plan|DWG:TYPICAL SECTION.dwg USER: James Jackson PLOT DATE: 3/28/2022 1:41:34 PM



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Goleta Sanitary District Climate Adaptation Plan . D202100303.00



**Figure G**  
San Pedro Creek Bank Stabilization  
Vegetated Rock Slope Protection Concept

# Goleta Sanitary District Climate Adaptation Plan - Appendix G



## OPINION OF PROBABLE CONSTRUCTION COST

Project: Goleta Sanitary District Climate Adaptation Plan

Prepared By/Checked By: NAB/NEP

Date Prepared: 4/1/2022

Facility: San Pedro Creek Bank Stabilization - Rock Slope Protection

MNS Proj. No. GOLSD.210163

Estimate Type:  Conceptual  
 Preliminary (w/o plans)  
 Design Development @ \_\_\_\_\_ % complete  
 Construction  
 Change Order

Item No.	Description	Qty.	Units	Materials		Installation		Sub-Contractor		Total
				\$/Unit	Total	\$/Unit	Total	\$/Unit	Total	
1	Mobilization/Demobilization	1	LS	\$0	\$0	\$150,000	\$150,000			\$150,000
2	Access Road Improvements	1	LS	\$25,000	\$25,000	\$25,000	\$25,000			\$50,000
3	Clear and Grub Vegetation	1,160	LF	\$50	\$58,000	\$100	\$116,000			\$174,000
4	Rock Armor Surface Stabilization, 6" Thickness, Top of Bank (B)	430	CY	\$45	\$19,350	\$40	\$17,200			\$36,550
5	Sheet Pile Wall, 20' Depth (F)	23,200	SF	\$36	\$835,200	\$21	\$487,200			\$1,322,400
6	Excavate, Dry, Transport and Dispose of Bank Material, Toe of Bank	4,468	CY	\$20	\$89,360	\$25	\$111,700			\$201,060
7	Rock Armor Surface Stabilization, Toe of Bank (A)	4,468	CY	\$42	\$187,656	\$25	\$111,700			\$299,356
8	Vegetated Errosion Control (C)	1	LS	\$20,000	\$20,000	\$25,000	\$25,000			\$45,000
9	Irrigation System and Irrigation System Maintenance (D)	1	LS	\$40,000	\$40,000	\$45,000	\$45,000			\$85,000
Subtotals					\$1,234,566		\$1,043,800		\$0	\$2,278,366
Division 1 Costs		@	2.00%		\$24,691		\$20,876		\$0	\$45,567
Subtotals					\$1,259,257		\$1,064,676		\$0	\$2,323,933
Taxes - Materials Costs		@	7.75%		\$95,679					\$95,679
Subtotals					\$1,354,936		\$1,064,676		\$0	\$2,419,612
Contractor OH&P		@	15.00%		\$185,185				\$0	\$185,185
Subtotals					\$1,540,121		\$1,064,676		\$0	\$2,604,797
Estimate Contingency		@	30.00%							\$781,439
Subtotals										\$3,386,236
<b>Total Estimate</b>										<b>\$3,390,000</b>

- (A) Caltrans 60 Pound Class II Rock. 2' Thickness.
- (B) Caltrans 10 Pound Class II Rock. 6" Thickness.
- (C) Willows, Pole Planting, 4' On Center, 1500 Willow Poles
- (D) Temporary Irrigation System, 5 Year Duration Operating During Summers
- (E) 5 Year Maintenance Duration, Does Not Include Water Cost
- (F) Type Nucor NZ 19 Sheeting



# **GENERAL MANAGER'S REPORT**

## **GOLETA SANITARY DISTRICT GENERAL MANAGER'S REPORT**

The following summary report describes the District's activities from April 19, 2022 through May 2, 2022. It provides updated information on significant activities under three major categories: Collection System, Treatment/Reclamation and Disposal Facilities, and General and Administration Items.

### **1. COLLECTION SYSTEM REPORT**

#### **LINES CLEANING**

Staff is conducting priority areas lines cleaning throughout the District.

#### **CCTV INSPECTION**

Staff is conducting routine Closed-Circuit Television (CCTV) inspections in the area of Walnut Drive and Hollister Avenue.

#### **GREASE AND OIL INSPECTIONS**

Staff continues with the annual Grease and Oil inspections.

#### **REPAIR AND MAINTENANCE**

Staff replaced the fuel and the fuel-water separator filters on the Vactor truck and the hydraulic oil filters on the trailer mounted air compressor. Staff also cleared vegetation from several manholes along the Atascadero Creek trunk line area. Duke's Root Control, Inc. is scheduled to begin the semi-annual root foaming program on Thursday, May 5, 2022. A total of approximately 11,000 linear feet of 6, 8 and 10-inch diameter sewer lines will be treated for root control.

#### **SMARTCOVERS FLOW LEVEL SENSORS**

Staff installed a Smart Cover flow level sensor on manhole 03R36 near San Antonio Creek Road and Via Los Santos. Smart Covers use satellite-linked sensors to monitor flow conditions within the channel of a sewer manhole. This information is accessed on desktop computers and District-issued smart phones to provide an electronic record of the flow conditions and to alert staff of unusual flow and level conditions at and near the sensor equipped manhole, such as a rising level which could lead to a sewer overflow. This is the ninth Smart Cover sensor installed on District collection system facilities.

#### **GOLETA SANITARY DISTRICT FY 2021-22 PILOT PROJECTS**

The fiberglass manhole liner installation work with Ayala Engineering on San Antonio Creek Road and the Armorock manhole installation on Poderosa Way near N. San Marcos Road have been successfully completed. Staff will evaluate these materials for inclusion in future Capital Improvement projects.

#### **2021 CCTVI PROJECT REVIEW & ASSET MANAGEMENT PROGRAM UPDATE**

Hazen and Sawyer continue updating the Asset Management Plan Capital Improvement Plan (CIP) Story Map. The update of the Collection System portion of the 10-Year CIP Story Map is anticipated to be complete in the coming weeks.

## **2. TREATMENT, RECLAMATION AND DISPOSAL FACILITIES REPORT**

Plant flows have normalized to an average of 4.5 million gallons per day. The demand for reclaimed water has begun to increase due to warmer temperatures. Flow concentrations and loadings during the weekends continue to cause intermittent challenges and various levels of plant interference. The Reclamation Disinfection Study by Hazen and Sawyer (Hazen) continues into its final phase. A Technical Memorandum is being compiled with the results of the ultraviolet (UV) and peracetic acid testing. Medium and long-term solutions such as micro/nano-filtration and UV disinfection prior to chlorination will be evaluated at a feasibility level for cost and constructability.

Centrifuge and dredging operations continue in lagoon #2.

The Lystek Thickened Waste Activated Sludge (TWAS) pre-treatment pilot project is operating 24/7. We believe that the thermal hydrolysis process may reduce inhibitory chemicals that are adsorbed onto the sludge. We will be testing this hypothesis by sampling for these chemicals before and after the reactor once a steady state during the demonstration period has been reached. Once the demonstration period is complete, a summary report of the results and proforma analysis will be prepared and brought to the Board.

The Influent Pump Station Rehabilitation project has begun with the submittal and procurement process for the long lead-time items. Construction of the project may not start for another 5-8 months depending on the completion of the procurement process.

A public hearing on the environmental document for the Biosolids and Energy Strategic Plan (BESP) Phase 1 project is scheduled for Monday, May 2, 2022. This project is scheduled to begin construction by the end of the calendar year and to be completed by the end of 2023.

BESP Phases 2 & 3 preliminary engineering design is continuing to move forward. This project will provide a 30% design package for a centrifuge, thermal dryer, and a fats, oil and grease (FOG) receiving facility. This level of design is necessary to understand the cost and funding implications of the project.

Maintenance staff has begun to install the necessary conduit and electrical for the nanobubble generator. We expect this installation to occur later this week. The nanobubble technology will be tested to determine how effectively it reduces surfactants and other inhibitory chemicals as well as other process improvements. A proforma will be completed at the end of the pilot period to determine ongoing benefits, costs or potential savings.

### **PUBLIC EDUCATION AND OUTREACH**

Planning for the Spring newsletter is underway, and it is expected to be mailed around the end of May, or the beginning of June 2022 to District customers.

### 3. **GENERAL AND ADMINISTRATIVE ITEMS**

#### **Financial Report**

The District account balances as of May 2, 2022 shown below are approximations to the nearest dollar and indicate the overall funds available to the District at this time.

Operating Checking Accounts:	\$ 3,471,722
Investment Accounts:	\$ 31,903,037
Total District Funds:	\$ 35,374,759

The following transactions are reported herein for the period 04/19/22 – 05/02/22

Regular, Overtime, Cash-outs and Net Payroll:	\$ 121,539
Claims:	\$ 303,441
Total Expenditures:	\$ 424,980
Total Deposits:	\$ 3,630,494

Transfers of funds:

LAIF to Community West Bank Operational (CWB):	\$ - 0 -
CWB Operational to CWB Money Market:	\$ - 0 -
CWB Money Market to CWB Operational:	\$ - 0 -

The District's investments comply with the District's Investment Policy adopted per Resolution No. 16-606. The District has adequate funds to meet the next six months of normal operating expenses.

#### **Local Agency Investment Fund (LAIF)**

LAIF Monthly Statement – Previously submitted.

LAIF Quarterly Report – Previously submitted.

PMIA/LAIF Performance – Previously submitted.

PMIA Effective Yield – Previously submitted.

#### **Community West Bank (CWB)**

CWB Money Market Account – Previously submitted.

#### **Deferred Compensation Accounts**

CalPERS 457 Deferred Compensation Plan – Previously submitted.

Lincoln 457 Deferred Compensation Plan – Previously submitted.

**DISTRICT  
CORRESPONDENCE**  
Board Meeting of May 2, 2022



**Date:                      Correspondence Sent To:**

1. 04/20/2022 William Dole  
**Subject:** Sewer Service Availability  
Proposed Sewer Service Connection for a Lot Split  
A.P.N. 061-273-003 at 4640 Vieja Drive

**Date:                      Correspondence Received From:**

1. 04/08/2022 LAFCO Memorandum  
Santa Barbara Local Agency Formation Commission  
**Subject:** Transmittal Of Proposed Fiscal Year 2022-23 LAFCO Budget

***Hard Copies of the Correspondence are available at the District's Office for review***