

APPENDIX A

**Notice of Preparation and Initial Study for the
Draft Supplemental Environmental Impact Report**



COUNTY OF SAN LUIS OBISPO

Department of Public Works

Wade Horton, *Director*

DATE: November 8, 2017

TO: Responsible Agencies, Trustee Agencies, and Interested Parties

PROJECT TITLE: County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project (201R11D598; ED 15-170)

PROJECT APPLICANT: San Luis Obispo County Department of Public Works

RESPONSES DUE BY: December 15, 2017

The San Luis Obispo County Department of Public Works will be the Lead Agency and will prepare a Supplemental Environmental Impact Report (SEIR) for the above-referenced project. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the SEIR prepared by our agency when considering your permit or other approval for the project.

Please provide us the following information at your earliest convenience, but not later than the 30-day comment period, which began with your agency's receipt of the Notice of Preparation (NOP).

1. **NAME OF CONTACT PERSON.** Please include address, e-mail and telephone number.
2. **PERMIT(S) or APPROVAL(S) AUTHORITY.** Please provide a summary description of these and send a copy of the relevant sections of legislation, regulatory guidance, etc.
3. **ENVIRONMENTAL INFORMATION.** What environmental information must be addressed in the Environmental Impact Report to enable your agency to use this documentation as a basis for your permit issuance or approval?
4. **PERMIT STIPULATIONS/CONDITIONS.** Please provide a list and description of standard stipulations (conditions) that your agency will apply to features of this project. Are there other conditions that have a high likelihood of application to a permit or approval for this project? If so, please list and describe.
5. **REASONABLY FORESEEABLE PROJECTS, PROGRAMS or PLANS.** Please name any future project, programs or plans that you think may have an overlapping influence with the project as proposed.
6. **RELEVANT INFORMATION.** Please provide references for any available, appropriate documentation you believe may be useful to the county in preparing the SEIR. Reference to and/or inclusion of such documents in an electronic format would be appreciated.
7. **FURTHER COMMENTS.** Please provide any further comments or information that will help the county to scope the document and determine the appropriate level of environmental assessment.

The project description, location, and the probable environmental effects can be found on the County Department of Public Works website at <https://www.slocounty.ca.gov/pw/oak-shores-wwtf-eir>. Due to

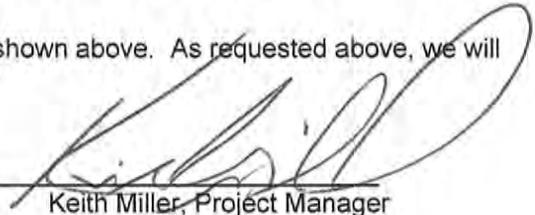
County of San Luis Obispo Government Center

County Govt Center, Room 206 | San Luis Obispo, CA 93408 | (P) 805-781-5252 | (F) 805-781-1229
pwd@co.slo.ca.gov | slocounty.ca.gov

the time limits mandated by State law, your response must be received at the earliest possible date, **but not later than 30 days after receipt of this notice.**

Please send your response to Keith Miller at the address shown above. As requested above, we will need the name for a contact person in your agency.

Signature _____



Keith Miller, Project Manager
Telephone: (805) 781-5714
E-mail: kmiller@co.slo.ca.us

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Initial Study Summary – Environmental Checklist

SAN LUIS OBISPO COUNTY DEPARTMENT OF PLANNING AND BUILDING
976 OSOS STREET • ROOM 200 • SAN LUIS OBISPO • CALIFORNIA 93408 • (805) 781-5600

(ver 5.8) Using Form

Project Title & No. County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project ED15-170 (201R11D598)

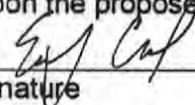
ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED: The proposed project could have a "Potentially Significant Impact" for at least one of the environmental factors checked below. Please refer to the attached pages for discussion on mitigation measures or project revisions to either reduce these impacts to less than significant levels or require further study.

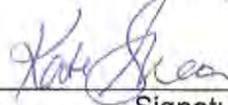
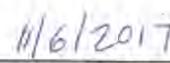
<input checked="" type="checkbox"/> Aesthetics	<input type="checkbox"/> Geology and Soils	<input type="checkbox"/> Recreation
<input checked="" type="checkbox"/> Agricultural Resources	<input type="checkbox"/> Hazards/Hazardous Materials	<input type="checkbox"/> Transportation/Circulation
<input checked="" type="checkbox"/> Air Quality	<input type="checkbox"/> Noise	<input type="checkbox"/> Wastewater
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Population/Housing	<input type="checkbox"/> Water /Hydrology
<input checked="" type="checkbox"/> Cultural Resources	<input type="checkbox"/> Public Services/Utilities	<input checked="" type="checkbox"/> Land Use

DETERMINATION: (To be completed by the Lead Agency)

On the basis of this initial evaluation, the Environmental Coordinator finds that:

- The proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- Although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- The proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- The proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" 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.
- Although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) 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.

Emily Creel, SWCA Environmental Consultants  October 17, 2017
 Prepared by (Print) Signature Date

Kate Shea, SLO County  Ellen Carroll, Environmental Coordinator 
 Reviewed by (Print) Signature (for) Date

Project Environmental Analysis

The County's environmental review process incorporates all of the requirements for completing the Initial Study as required by the California Environmental Quality Act (CEQA) and the CEQA Guidelines. The Initial Study includes staff's on-site inspection of the project site and surroundings and a detailed review of the information in the file for the project. In addition, available background information is reviewed for each project. Relevant information regarding soil types and characteristics, geologic information, significant vegetation and/or wildlife resources, water availability, wastewater disposal services, existing land uses and surrounding land use categories and other information relevant to the environmental review process are evaluated for each project. The County Planning Department uses the checklist to summarize the results of the research accomplished during the initial environmental review of the project.

Persons, agencies or organizations interested in obtaining more information regarding the environmental review process for a project should contact the County of San Luis Obispo Planning Department, 976 Osos Street, Rm. 200, San Luis Obispo, CA, 93408-2040 or call (805) 781-5600.

A. PROJECT

DESCRIPTION: Request by the County of San Luis Obispo (County) Department of Public Works to allow for proposed upgrades and improvements to the County Service Area No. 7A (CSA-7A) Wastewater Treatment Facility (WWTF) in the community of Oak Shores. The proposed improvements would include upgrades to the wastewater treatment plant, sewage collection system, and effluent disposal system located within and surrounding the community of Oak Shores (refer to Figures 1 through 4).

Project History

The County operates the CSA-7A (Oak Shores) WWTF. The existing Regional Water Quality Control Board (RWQCB) discharge permit references a build-out population of approximately 850 units and allows a maximum average daily flow of 100,000 gallons per day (gpd), averaged over the month. An effluent pump station currently conveys treated effluent to disposal facilities, including three percolation basins and 1.3 acres of spray fields. In addition, two storage ponds provide temporary storage for use during the rainy season.

Although the wastewater system is not currently operating at maximum capacity, it has commitments to serve 912 parcels: 583 developed parcels in Oak Shores I, 269 undeveloped parcels in Oak Shores I, and 60 undeveloped parcels in Oak Shores II. In 1984, a tentative tract map for Oak Shores II (Tract 1291) was approved, and an EIR was certified by the County Board of Supervisors. The tentative tract map subsequently expired and a revised tentative tract map for Oak Shores II (now Tract 2162) was approved. A Supplemental EIR (SEIR) for Oak Shores II was certified in 1996. Phase I (of VI) of Tract 2162 includes 60 parcels and received commitments to provide wastewater service from CSA-7A and final map approval by the County Board of Supervisors. In 2006, the County placed a moratorium on new annexations to the existing wastewater service area due to a lack of future capacity in the system. Implementation of the proposed project would increase the capacity of the existing system to meet all current commitments and serve Phases II through VI of approved tentative Tract Map 2162 (285 additional parcels). The proposed project would provide wastewater service capacity for a total of 1,197 parcels, including 583 currently served parcels, 329 parcels with existing commitments, and new commitments for an additional 285 parcels.

Table 1. Oak Shores WWTF Commitments

Tract	Total Approved Parcels	Existing Parcels Served	Existing Additional Commitments	Approved Parcels With No WWTF Commitment
Oak Shores I	852	583	269	0
Oak Shores II (Tract 2162)	345	0	60	285
TOTAL	1,197	583	329	285

To address the additional capacity required for Phases II through VI of Oak Shores II, the County proposed upgrades and additions to the Oak Shores WWTF in 2008. The proposed upgrades in 2008 included:

- (1) upgrades to the existing treatment plant;
- (2) additional percolation basins at the existing Kavanaugh percolation basin site;
- (3) new sludge drying beds adjacent to the existing spray fields; and,
- (4) various sewer collection system improvement alternatives.

The 2008 project was analyzed in the 2008 Oak Shores WWTP EIR. Following County Board of Supervisors approval of the 2008 Oak Shores WWTP EIR, a neighboring property owner filed a CEQA challenge, with the intent of compelling an alternative to the proposed expansion of the Kavanaugh percolation ponds. The project was then put on hold.

In 2015, the current owner of Tract 2162 submitted a Wastewater System Capacity Study – Addendum No. 1 (addendum) to address the specific needs of Phases II through VI of Tract 2162. The addendum was prepared to identify an alternative disposal site that has sufficient land area, acceptable soil and groundwater conditions, and reasonable proximity to the existing disposal facilities to eliminate the originally proposed expansion of the Kavanaugh percolation ponds and meet the original 2008 project objectives. The revised project now under consideration includes all components of the original WWTP Upgrade Project (2008), except that the proposed percolation basins at the Kavanaugh site have been eliminated and replaced with new disposal facilities at Gregg Ranch, and the proposed sludge drying beds to be located at the existing storage pond and spray field location would be relocated either to the existing treatment plant or the proposed Gregg Ranch disposal site.

The modified project includes the following components:

- (1) upgrades to the existing treatment plant;
- (2) new storage pond and spray field at Gregg Ranch;
- (3) new sludge drying beds within the existing treatment plant or at Gregg Ranch; and,
- (4) various sewer collection system improvement alternatives.

The SEIR analysis will focus on the modified project improvements that were not previously analyzed in the 2008 Oak Shores WWTP EIR. Each of the modified project components is identified in Table 2; new or modified project components not analyzed in the 2008 WWTP EIR are described in detail below.

Table 2. Project Components

WWTF Components	Proposed 2008 WWTF Upgrades	Currently Proposed WWTF Upgrades	To be Analyzed in SEIR?
Existing Treatment Plant	New headworks, upgrade aerated lagoon system, retrofit stabilizing ponds, convert aeration basins to sludge-holding and digestion ponds, construct new pump station	New headworks, upgrade aerated lagoon system, retrofit stabilizing ponds, convert aeration basins to sludge-holding and digestion ponds, construct new pump station	No – This component was analyzed in the 2008 WWTP EIR and has not changed
Gregg Ranch Effluent Disposal Site	None	New storage pond and spray field	Yes – this is a new project component
Lift Station and Force Main Pipeline	None	New lift station at existing spray field and 2-mile-long force main pipeline to Gregg Ranch Disposal Site	Yes – this is a new project component
Kavanaugh Percolation Basins	Additional percolation basins at existing Kavanaugh site	None	No – this project component is no longer proposed
Sludge Drying Beds	New sludge drying beds at existing spray field	New sludge drying beds at the existing treatment plant and/or Gregg Ranch	Yes – This component has changed since preparation of the 2008 WWTP EIR
Sewer Collection System	Various sewer collection system improvement alternatives	Various sewer collection system improvement alternatives	No – this component was analyzed in the 2008 WWTP EIR and has not changed

Project Components

The existing Oak Shores wastewater treatment facility disposal system includes spray fields, spray field storage ponds, and the Kavanaugh percolation ponds. Use of the Kavanaugh percolation ponds was the primary contention raised in the CEQA challenge following County Board of Supervisors action on the 2008 Oak Shores WWTP EIR. To eliminate the use of the Kavanaugh ponds, or restrict their use to current flows and County practices (thus not requiring an expansion), a new disposal site at the 160-acre Gregg Ranch was identified. The sludge drying beds originally proposed at the existing spray field and storage pond location were also relocated to either the existing treatment plant location or Gregg Ranch. These project modifications are described below.

The proposed project (including those components analyzed in the 2008 WWTP EIR that are still being proposed, even if not re-evaluated in the SEIR) would increase the CSA-7A WWTF capacity to serve existing commitments to 329 currently unserved parcels, as well as an additional 285 residential parcels with no existing commitment, for a total of 1,197 total parcels served. The project would increase the average daily flow capacity during the peak month from 100,000 gpd to 194,000 gpd (a 94,000 gpd increase).

Gregg Ranch Effluent Disposal Site

At Gregg Ranch, a new 10 acre-foot (af) high-density polyethylene (HDPE)-lined storage pond would be constructed to store treated effluent, prior to being discharged on a proposed 15-acre spray field north of Lynch Canyon Road (refer to Figure 3, Storage and Disposal at Gregg

Ranch). The proposed 10-af storage pond and 15-acre spray field would accommodate all phases of Tract 2162 (total of 1,197 connections). The 15-acre spray field would consist of approximately 100 sprinklers at a height of 3 to 4 feet. The sprinkler heads would be designed to be moveable, so that spray can be adjusted periodically. Hours of operation of the sprinklers would vary depending on actual flow to the wastewater treatment system and would generally increase over time as additional flows are generated by new Tract II development within Oak Shores. Operation of the sprinklers would likely be limited to 1 to 2 hours per day when operation of the Gregg Ranch disposal facilities is initiated. At maximum build-out of Oak Shores, the sprinklers could be operated up to 8 to 12 hours per day.

No haul trips are expected to be necessary for excavation of the 10-af storage pond and 15-acre spray field. All grading would be balanced on-site. It is anticipated that approximately 10,000 cubic yards of cut and 10,000 cubic yards of fill would be necessary for grading of the storage pond. The area of disturbance for the pond is approximately 1.5 acres; the total pond surface area would be approximately 1 acre. The storage pond would have expansion capability for a 40-af capacity storage pond, which is anticipated for future build-out of Oak Shores (an additional 1,713 connections). Expansion of the pond into the 40-af pond would require additional disturbance of approximately 6 acres; the total pond surface area would then be approximately 5 acres. Expansion to 40 af would require approximately 55,000 additional cubic yards of cut and 55,000 additional cubic yards of fill. These amounts would also be balanced on-site by spreading on the spray field and/or construction of earthen berms. No material export is currently proposed.

Lift Station and Force Main Pipeline

The proposed effluent disposal system improvements include a booster pump (lift) station at the existing spray fields and storage ponds, and an approximately 2-mile-long, 10-inch-diameter force main pipeline that would extend from the existing spray fields to the Gregg Ranch property. The proposed force main pipeline would generally be located along the western edge of the public right-of-way on Oak Shores Drive and the northern edge of the public right-of-way on Lynch Canyon Road and would convey treated wastewater to the Gregg Ranch disposal site.

It is expected that approximately 1,200 cubic yards of imported material (sand) would be necessary for bedding of the proposed 10-inch force main pipe trench along Oak Shores Drive and Lynch Canyon Road. The same quantity of native material would be exported to make room for the sand, resulting in a total of approximately 240 haul trips. The proposed booster lift station would be located adjacent to the existing spray fields and storage ponds west of Oak Shores Drive (refer to Figure 2, Project Location Map). The submersible (underground) lift station would include an 8-foot-diameter manhole and would require disturbance of approximately 20 square feet of surface area. Approximately 28 cubic yards of cut and 28 cubic yards of fill would be required for over-excavation for the submersible manhole to a depth of approximately 15 feet deep. The disturbed surface area would be returned to original conditions after construction.

Sludge Drying Beds

The County proposes to construct 5,000 square feet of sludge drying beds either within the existing treatment plant or at the Gregg Ranch disposal site (refer to Figure 3, Storage and Disposal at Gregg Ranch, and Figure 4, Wastewater Treatment Plant Upgrades). The sludge drying beds would be approximately 3 feet deep. Construction of the sludge drying beds would result in approximately 8,500 square feet of disturbance, including 1,000 cubic yards of cut and 100 cubic yards of fill. Approximately 31 tons of dry solids would be generated per year. Dried sludge would be trucked off-site to a County-approved facility (i.e., Cold Canyon Landfill, Engel and Gray composting, or similar facility).

Construction Schedule

Construction of the Gregg Ranch improvements, lift station, force main, and sludge drying beds would take approximately 6 months and would occur within the dry-weather period for

construction stormwater measures (e.g., April through October). It is currently estimated that construction would begin in 2019; however, project construction could be delayed to subsequent years. The construction season and general duration would remain the same.

Project Location

The proposed project site is located within and adjacent to the Oak Shores Village Area, on the north shore of the Nacimiento Reservoir (refer to Figure 1, Project Vicinity Map). Surrounding land uses generally include the Nacimiento Reservoir to the south and undeveloped open space and grazing and rural lands to the north, east, and west. The WWTF improvements are proposed in three main project areas (refer to Figure 2, Project Location Map):

- the existing treatment plant;
- the existing spray fields and storage ponds location; and,
- the new Gregg Ranch disposal site.

The existing treatment plant is located on a 25.42-acre parcel within Oak Shores Village and accessed from Ridge Rider Road. The existing spray fields and storage ponds are located on the west side of Oak Shores Drive, approximately 1.5 miles northwest of the treatment plant. The existing WWTF disposal system also includes the Kavanaugh percolation basins located approximately 2,000 feet southwest of the storage ponds and spray fields, approximately 250 feet east of Kavanaugh Creek. No improvements are proposed at the Kavanaugh percolation basins. The spray fields, wet season storage ponds, and Kavanaugh percolation basins are located on three adjacent parcels of 7.9, 86.7, and 73 acres in size.

Gregg Ranch is a 160-acre parcel that was purchased by the owner of Oak Shores Tract II (Tract 2162) as a potential location for additional storage ponds and spray fields for the WWTF upgrade. The proposed Gregg Ranch spray field and storage pond would be located north of Lynch Canyon Road, approximately 0.15 mile west of Interlake Road. The proposed 2-mile-long force main pipeline would extend along Oak Shores Drive and Lynch Canyon Road between the existing spray fields and the proposed facilities at Gregg Ranch.

The project is within the North County Planning Area (Nacimiento Sub Area).

ASSESSOR PARCEL NUMBER(S): 012-201-043, 080-021-019, 080-021-028, 080-011-017, 080-021-005

Latitude: 35 degrees 46' 57" N Longitude: 120 degrees 58' 43" W

SUPERVISORIAL DISTRICT # 1

B. EXISTING SETTING

PLAN AREA: North County **SUB:** Nacimiento **COMM:** Oak Shores

LAND USE CATEGORY: Open Space Public Facilities Residential Single Family , Agriculture

COMB. DESIGNATION: Geologic Study Sensitive Resource Area

PARCEL SIZE: approx. 25.42 acres, 167.6 acres (combined), and 160 acres

TOPOGRAPHY: Nearly level to steeply sloping

VEGETATION: Grasses Scattered Oaks Ruderal Urban/Built-up

EXISTING USES: Undeveloped, public facilities

SURROUNDING LAND USE CATEGORIES AND USES:

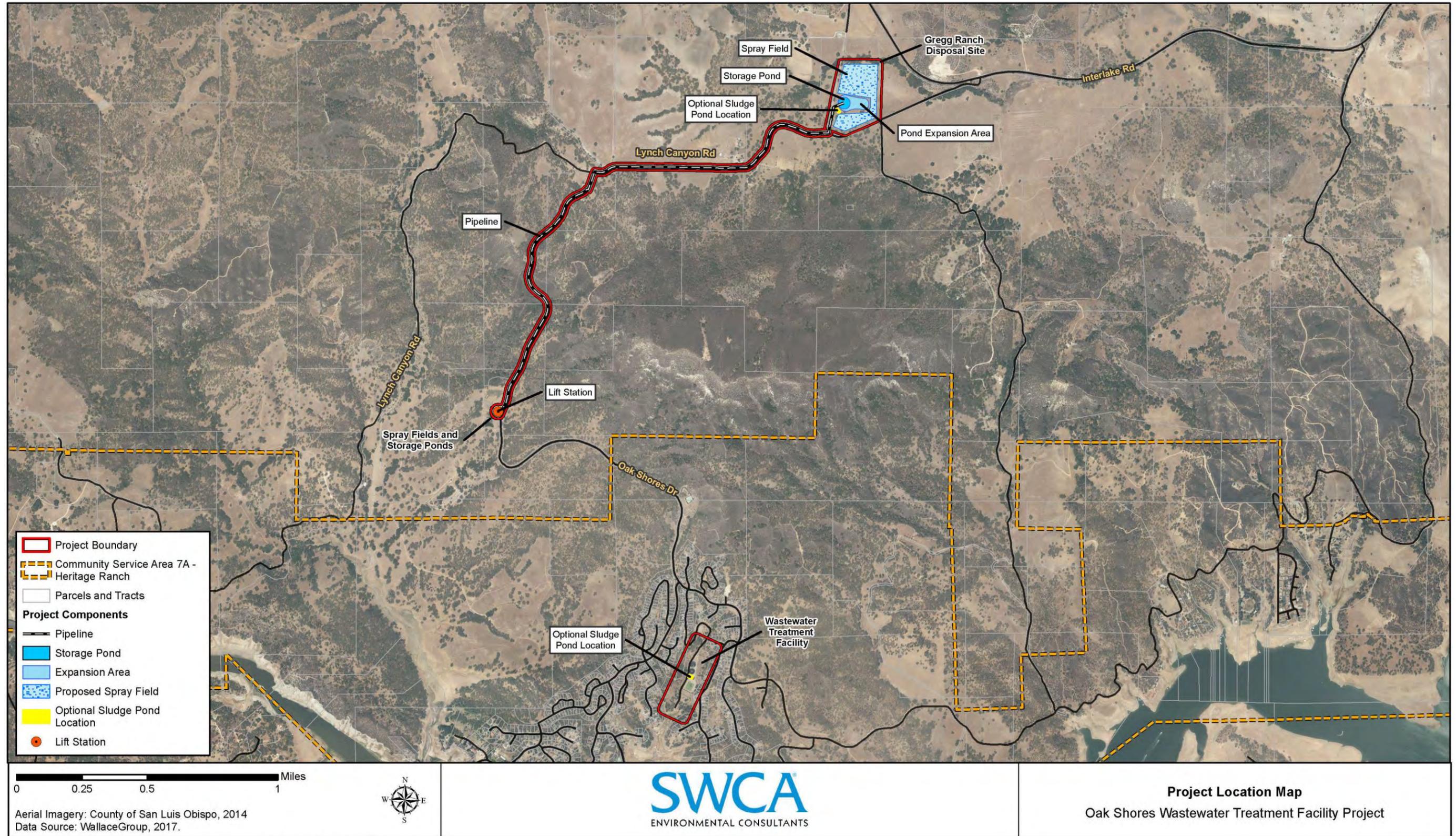
<i>North:</i> Rural Lands; undeveloped agricultural uses	<i>East:</i> Agriculture; undeveloped agricultural uses
<i>South:</i> Agriculture; undeveloped agricultural uses	<i>West:</i> Agriculture; undeveloped agricultural uses

Figure 1. Project Vicinity Map



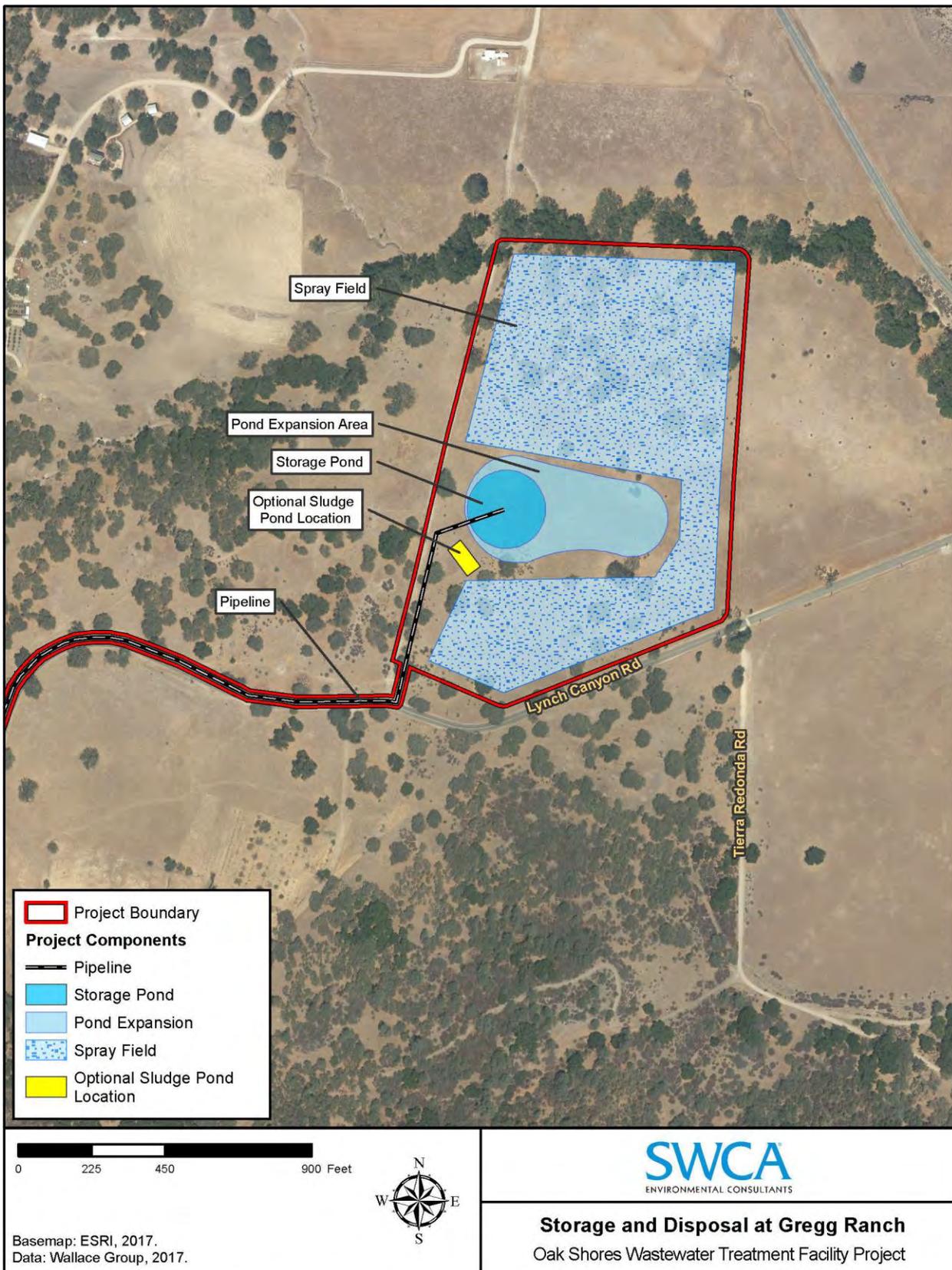
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Figure 2. Project Location Map



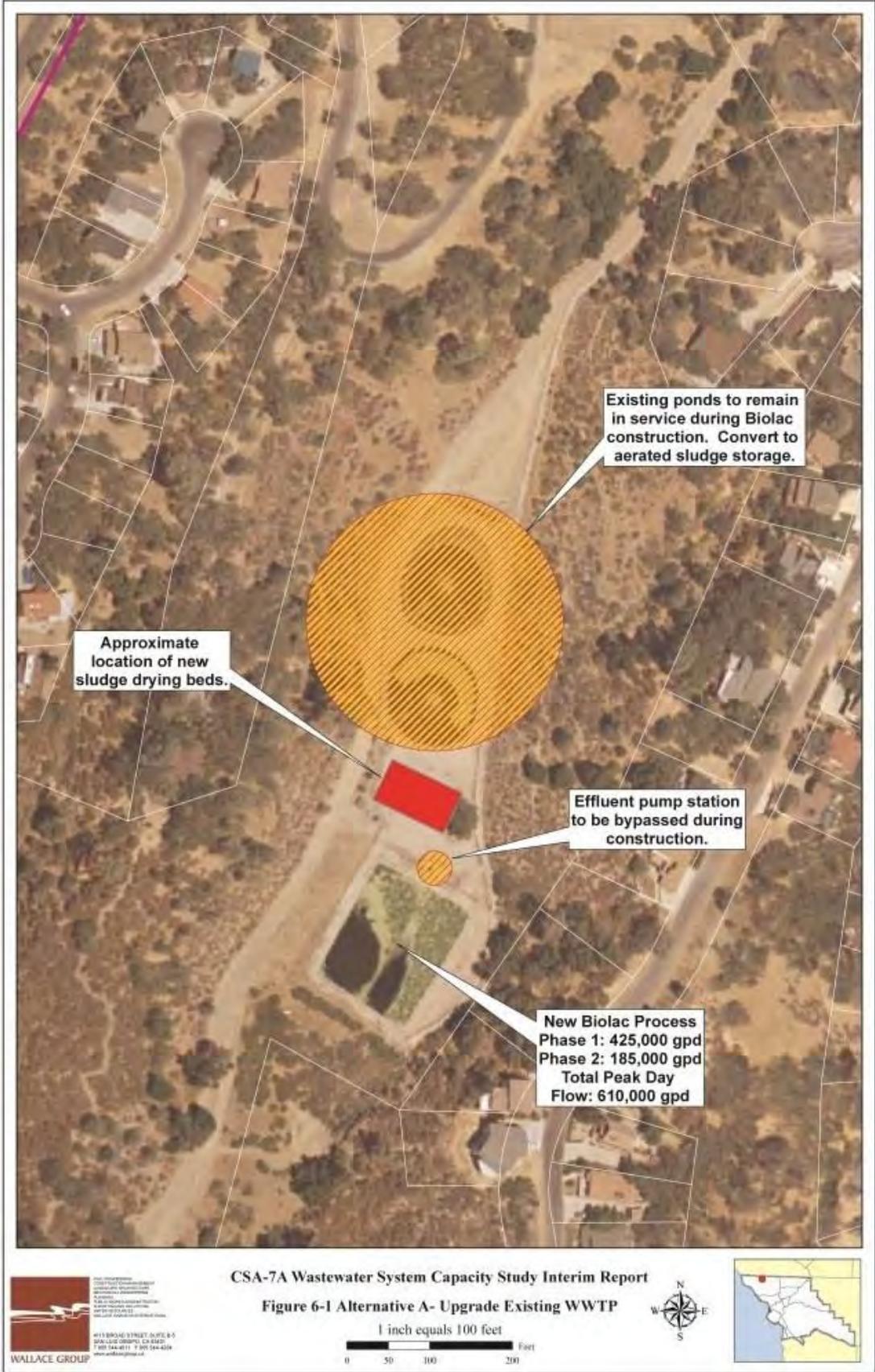
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Figure 3. Proposed Storage and Disposal Facilities at Gregg Ranch



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Figure 4. Proposed Sludge Drying Beds at WWTF



C. ENVIRONMENTAL ANALYSIS

During the Initial Study process, at least one issue was identified as having a potentially significant environmental effects (see following Initial Study).



COUNTY OF SAN LUIS OBISPO INITIAL STUDY CHECKLIST

1. AESTHETICS	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
<i>Will the project:</i>				
a) Create an aesthetically incompatible site open to public view?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Introduce a use within a scenic view open to public view?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Change the visual character of an area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create glare or night lighting, which may affect surrounding areas?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Impact unique geological or physical features?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Aesthetics

The project is proposed in unincorporated San Luis Obispo County, in the community of Oak Shores and surrounding rural areas. The overall region is highly scenic and public views from roadways and recreational areas include the Nacimiento Reservoir and rolling hillsides and ridgelines supporting oak woodland. The modified project components, particularly the proposed sludge drying beds and spray field and storage pond at Gregg Ranch have the potential to result in significant effects on public views. These improvements would be visible from proximate public roadways, including Lynch Canyon Road and Interlake Road. The proposed project could result in incompatible public views, new uses within a public scenic view, change the visual character of a public view, and/or create lighting or glare that could affect public views. The project modifications do not include night lighting or potential sources of substantial glare; therefore, this impact is expected to be less than significant.

Due to the inclusion of the Gregg Ranch components, there is a potential that the proposed project would result in significant impacts to visual/aesthetic resources not previously discussed in the 2008 WWTP EIR; therefore, this issue area will be analyzed in the SEIR. The visual setting and potential visual effects of project components analyzed in 2008 have not changed; therefore, this section would only analyze the visual effects of the new or modified project components.

2. AGRICULTURAL RESOURCES

<i>Will the project:</i>	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) <i>Convert prime agricultural land, per NRCS soil classification, to non-agricultural use?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) <i>Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) <i>Impair agricultural use of other property or result in conversion to other uses?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) <i>Conflict with existing zoning for agricultural use, or Williamson Act program?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) <i>Other:</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Agricultural Resources

The proposed Gregg Ranch disposal site is currently zoned Agriculture and is designated Farmland of Local Importance and Grazing Land in the California Department of Conservation Natural Resources Agency's Farmland Mapping and Monitoring Program (FMMP). Onsite soils include Hanford and Greenfield soils (2 to 9 percent slopes), Mocho clay loam (2 to 9 percent slopes), Rincon clay loam (9 to 15 percent slopes), and San Ysidro sandy loam (2 to 9 percent slopes). These soils are classified as Farmland of Statewide Importance, Prime Farmland if irrigated, and Not Prime Farmland by the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). Gregg Ranch is also within a Williamson Act contract.

Development of these areas could result in the conversion of prime farmland and/or important farmland to non-agricultural uses. Project implementation could also affect existing Williamson Act contracts in place at Gregg Ranch and surrounding agricultural activities. Due to the inclusion of the Gregg Ranch components, there is a potential that the proposed project would result in significant impacts to agricultural resources not previously discussed in the 2008 WWTP EIR; therefore, this issue area will be analyzed in the SEIR. The agricultural setting and potential agricultural impacts of project components analyzed in 2008 have not changed; therefore, this section would only analyze the agricultural effects of the new or modified project components.

3. AIR QUALITY

<i>Will the project:</i>	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) <i>Violate any state or federal ambient air quality standard, or exceed air quality emission thresholds as established by County Air Pollution Control District?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) <i>Expose any sensitive receptor to substantial air pollutant concentrations?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. AIR QUALITY

Will the project:

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
c) <i>Create or subject individuals to objectionable odors?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) <i>Be inconsistent with the District's Clean Air Plan?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) <i>Result in a cumulatively considerable net increase of any criteria pollutant either considered in non-attainment under applicable state or federal ambient air quality standards that are due to increased energy use or traffic generation, or intensified land use change?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

GREENHOUSE GASES

f) <i>Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) <i>Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) <i>Other:</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Air Quality

The proposed project modifications would result in additional construction activities, more extensive grading and disturbance, and potentially increased long-term operational and maintenance requirements. The primary source of pollutants associated with the project modifications would result from construction activities, such as grading, which would create fugitive dust (PM₁₀) and diesel particulate matter. Operational impacts would include any emissions generated by operation and maintenance of the facilities, and potential odors from storage ponds, spray fields, and sludge drying beds. In addition to sensitive receptors identified in the 2008 WWTP EIR, additional sensitive receptors in the vicinity of new proposed project areas (i.e., Gregg Ranch and the location of the sludge drying beds) would also be potentially affected by the project. Relocation of the sludge drying beds could result in increased impacts associated with odors.

The proposed project modifications could create additional or more severe air emissions and effects than those identified in the 2008 WWTP EIR. Recent legislation and San Luis Obispo County Air Pollution Control District (SLOAPCD) regulations also now require a more comprehensive analysis of greenhouse gas emissions. Therefore, the project could result in significant impacts related to air quality and GHG beyond those discussed in the 2008 WWTP EIR, and this issue will be analyzed in the SEIR. Per consultation with the SLOAPCD and consistent with guidelines in the SLOAPCD's CEQA Handbook (2012), updated emissions modeling will be conducted for the whole project (including components considered in the 2008 WWTP EIR and unchanged in the current proposal) to quantify estimated emissions generated by all project-related construction activities and long-term operations.

4. BIOLOGICAL RESOURCES

<i>Will the project:</i>	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) <i>Result in a loss of unique or special status species* or their habitats?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) <i>Reduce the extent, diversity or quality of native or other important vegetation?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) <i>Impact wetland or riparian habitat?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) <i>Interfere with the movement of resident or migratory fish or wildlife species, or factors, which could hinder the normal activities of wildlife?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) <i>Conflict with any regional plans or policies to protect sensitive species, or regulations of the California Department of Fish & Wildlife or U.S. Fish & Wildlife Service?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) <i>Other:</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* Species – as defined in Section 15380 of the CEQA Guidelines, which includes all plant and wildlife species that fall under the category of rare, threatened or endangered, as described in this section.

Biological Resources

The proposed disposal site at Gregg Ranch and 2-mile long force main pipeline that would connect the proposed Gregg Ranch facilities with the existing spray field site would require disturbance in areas of potentially sensitive biological resources not previously considered or analyzed in the 2008 WWTP EIR. The Gregg Ranch site supports scattered oak trees and grassland habitat, and an unnamed drainage extends just north of the proposed spray field location. The proposed pipeline would cross several drainage features and the project could also, therefore, affect jurisdictional areas and associated habitat. The scope of the SEIR includes seasonal botanical surveys, habitat mapping, and analysis of short- and long-term impacts to plants and wildlife.

Due to the inclusion of the Gregg Ranch components, the proposed project modifications could result in significant impacts to biological resources not previously identified in the 2008 WWTP EIR; therefore, this issue will be analyzed in the SEIR. The biological setting and potential impacts on biological resources resulting from the project components analyzed in 2008 have not changed; therefore, this section would only analyze the effects of the new or modified project components.

5. CULTURAL RESOURCES

<i>Will the project:</i>	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) <i>Disturb archaeological resources?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) <i>Disturb historical resources?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

5. CULTURAL RESOURCES

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
<i>Will the project:</i>				
c) <i>Disturb paleontological resources?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) <i>Cause a substantial adverse change to a Tribal Cultural Resource?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) <i>Other: _____</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Cultural Resources

This project is within the border territory historically shared by Southern Salinan to the north and Chumash to the south. The proposed storage and disposal site at Gregg Ranch and associated 2-mile long force main pipeline would require disturbance in areas of potentially sensitive archaeological resources not previously considered or analyzed in the 2008 WWTP EIR.

Two cultural resources reports have been completed to date: a Phase I archaeology survey and an Expanded Phase I survey. The conclusions and recommendations in these reports will inform the Cultural Resources section of the SEIR. The County has initiated the AB52 tribal consultation process by sending consultation invitation letters to affected Native American tribes. Tribal representatives have responded and provided input. The results of the consultation process will be documented in the SEIR.

Gregg Ranch previously comprised a portion of Lynch Ranch, as identified on United States Geological Survey maps. Several historic-age agricultural accessory structures associated with Lynch Ranch are located to the south of Lynch Canyon Road, across from the proposed spray fields. The SEIR will include an assessment of potential impacts to historic resources.

Due to the inclusion of the Gregg Ranch components, project-related earthwork, grading, and trenching have the potential to unearth unknown prehistoric and historic resources, resulting in potentially significant impacts to cultural resources in areas not previously analyzed in the 2008 WWTP EIR; therefore, this issue will be analyzed in the SEIR. The cultural setting and potential impacts on cultural resources resulting from the project components analyzed in 2008 have not changed; therefore, this section would only analyze the potential effects on cultural resources related to the new or modified project components. No known paleontologically sensitive areas exist within the modified areas of disturbance. These issues and any potentially significant impacts will be confirmed in the SEIR.

6. GEOLOGY AND SOILS

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
<i>Will the project:</i>				
a) <i>Result in exposure to or production of unstable earth conditions, such as landslides, earthquakes, liquefaction, ground failure, land subsidence or other similar hazards?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

6. GEOLOGY AND SOILS

<i>Will the project:</i>	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
b) <i>Be within a California Geological Survey "Alquist-Priolo" Earthquake Fault Zone", or other known fault zones*?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) <i>Result in soil erosion, topographic changes, loss of topsoil or unstable soil conditions from project-related improvements, such as vegetation removal, grading, excavation, or fill?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) <i>Include structures located on expansive soils?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) <i>Be inconsistent with the goals and policies of the County's Safety Element relating to Geologic and Seismic Hazards?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) <i>Preclude the future extraction of valuable mineral resources?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) <i>Other:</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

* Per Division of Mines and Geology Special Publication #42

Geology and Soils

Setting. The following relates to the project's geologic aspects or conditions:

Topography: Nearly level to very steeply sloping

Within County's Geologic Study Area?: Yes - portion

Landslide Risk Potential: Moderate to high

Liquefaction Potential: Low

Nearby potentially active faults?: No Distance? Hosgri fault - 18 miles to the west

Area known to contain serpentine or ultramafic rock or soils?: No

Shrink/Swell potential of soil: Low to high

Other notable geologic features? None

The new and modified project components would result in the disturbance of approximately 10.25 acres, including 7.5 acres for the storage pond (including the 40 af expansion), 1.25 acres for the sludge drying beds, and 1.5 acres for the lift pump station and force main pipeline. During grading activities, there is a potential for erosion and down-gradient sedimentation. Areas of the proposed pipeline would be located on very steep slopes adjacent to Oak Shores Drive, where the erosion hazard and geological hazards would be increased.

The project would be located in a seismically active area, but the project does not propose structures for human habitation and the WWTF facilities would be constructed in accordance with current established engineering practices and standard best management practices. Compliance with these

practices and other applicable standards would typically indicate that risks to people and/or structures, including those related to unstable earth conditions, were properly safeguarded against. The project would not preclude future mineral extraction or be inconsistent with the goals of the County Safety Element related to geologic and seismic hazards.

No significant geologic hazards above those identified in the 2008 WWTP EIR are present at Gregg Ranch or the other modified project component areas. As identified and discussed in the 2008 WWTP EIR, the existing spray field and storage pond area (where the new lift station is proposed) and areas along Oak Shores Drive between the existing spray field and Lynch Canyon Road (where the force main pipeline is proposed) are located in a Geologic Study Area combining designation due to high landslide potential. The existing spray field area generally includes two terraced areas with an approximately 30-foot elevation difference between them. One existing storage pond is constructed on each terrace. The spray field area, including the area adjacent to Oak Shores Drive where the lift station would be located, are generally flat to moderately sloping. The proposed lift station would be located in a generally flat area and would not be subject to high risk for landslide or geologic instability, and would not increase the risk for geologic instability in adjacent areas.

The proposed force main would extend along Oak Shores Drive from the existing spray field to Lynch Canyon Road, in areas with steep slopes and high landslide potential. However, as discussed in the 2008 WWTP EIR, significant natural landsliding has not historically occurred in this area. The force main pipeline would be constructed in accordance with current engineering practices and best management practices to reduce the potential for landslides or other geologic instability as a result of project development. The Biological Resources section of the SEIR will also consider the potential for spills related to damage to the force main pipeline and impacts to adjacent sensitive biological resources.

The San Luis Obispo County Department of Public Works generally prepares a sedimentation and erosion control plan for projects of this scale to minimize potential impacts related to erosion, sedimentation, and siltation. The plans, when necessary, are prepared by a civil engineer to address both temporary and long-term sedimentation and erosion impacts. The sedimentation and erosion control plan would define the proposed pre-construction, during construction, and post-construction methods and Best Management Practices (BMPs) that would be used to prevent erosive surface runoff. It would include a description of the BMPs and control practices to be used for both temporary and permanent erosion control measures and a description of the BMPs to reduce wind erosion at all times. Proposed methods and a description of the temporary and final practices to retain sediment on the site would also be described in the erosion control plan, including BMPs and other methods, design criteria for efficiency, a schedule for maintenance and upkeep, and provisions for the responsibility of maintenance.

In addition, based on the area of disturbance, a Stormwater Pollution Prevention Plan (SWPPP) will be required by the Regional Water Quality Control Board, which would further minimize the potential for erosion and subsequent sediment transport and discharge into surface waters or onto adjacent properties. The SWPPP will contain a site map(s) which shows the construction site perimeter, existing and proposed buildings, lots, roadways, storm water collection and discharge points, general topography both before and after construction, and drainage patterns across the project site. The SWPPP must list BMPs the discharger will use to protect storm water runoff and the placement of those BMPs. Additionally, the SWPPP must contain a visual monitoring program and a chemical monitoring program for "non-visible" pollutants to be implemented if there is a failure of BMPs.

The geological setting and potential impacts related to geology and soils resulting from the project components analyzed in 2008 have not changed and potential impacts related to the modified project components would be less than significant based on compliance with existing regulations and standard best management practices. Therefore, no further analysis of this issue in the SEIR is necessary.

7. HAZARDS & HAZARDOUS MATERIALS - Will the project:

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) <i>Create a hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) <i>Create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) <i>Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼-mile of an existing or proposed school?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) <i>Be located on, or adjacent to, a site which is included on a list of hazardous material/waste sites compiled pursuant to Gov't Code 65962.5 ("Cortese List"), and result in an adverse public health condition?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) <i>Impair implementation or physically interfere with an adopted emergency response or evacuation plan?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) <i>If within the Airport Review designation, or near a private airstrip, result in a safety hazard for people residing or working in the project area?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) <i>Increase fire hazard risk or expose people or structures to high wildland fire hazard conditions?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) <i>Be within a 'very high' fire hazard severity zone?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) <i>Be within an area classified as a 'state responsibility' area as defined by CalFire?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) <i>Other: _____</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Hazards and Hazardous Materials

No current or known historical land uses in the general Oak Shores area utilize hazardous materials. The proposed project modifications are not located in an area of known hazardous material contamination and are not listed on the Cortese List, which is a list of hazardous materials sites

compiled pursuant to Government Code Section 65962.5 (SWRCB 2016; DTSC 2016). There is one Leaking Underground Storage Tank (LUST) cleanup site approximately 0.25 mile north of the proposed spray field location at Gregg Ranch (SWRCB 2016). Cleanup status of this site is Completed – Case Closed and the project would not have any effect on this site.

The Gregg Ranch disposal site is within a High Fire Hazard Severity Zone and 5 to 10 minute emergency response zone, whereas portions of the pipeline, lift station, and existing treatment plant are all within the Very High Fire Hazard Severity Zone and 0 to 5 minute response time zone. The project would not include the construction of buildings for human habitation and would not present a significant fire safety risk or expose people to a substantial new hazard.

The project does not propose the routine use, transport, handling, or disposal of hazardous materials. As defined in Chapter 6.95 of Division 20 of the California Health and Safety Code, Section 25501(o), a hazardous material is "...any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment." Wastewater treatment by-product, sludge, etc. are not considered hazardous substances because they do not pose a significant present threat to human health or safety.

Construction of the project would require the use of standard materials, oils, lubricants, and fuels to operate and maintain construction equipment. This potential impact was identified and analyzed in the 2008 WWTP EIR, which provided the following information:

Accidental releases of hazardous materials used on-site during construction and operation of the proposed project (i.e., fuels, lubricants, and disinfecting compounds such as chlorine) would have the potential to adversely affect onsite workers, public health, and/or the environment. Spillage of fuels or chemicals could result in a threat of fire or explosion or other situations that may pose a threat to human health and/or the environment. Releases could occur as a result of vehicular accidents, equipment malfunction, or improper storage. Heavy equipment related to trenching, grading, pipe installation, and construction of the sludge drying beds, storage pond, and spray field, uses a significant amount of fuel and petroleum based lubricants, and require regular maintenance. Both the frequency of maintenance and the large volumes of fluids required to service the equipment increase the risk of accidental spillage.

Construction and operation of the modified project components would not result in any different or increased risk associated with the use or accidental spill of hazardous materials. The 2008 WWTP EIR identified mitigation to reduce potential significant impacts to less than significant. HAZ/mm-1 requires preparation and submittal of a Hazardous Materials Operating Plan to the San Luis County Department of Public Health, Environmental Health Division, that includes detailed procedures for handling and storage of hazardous materials used onsite and response to emergency or accidental releases of hazardous materials. Implementation of this measure would reduce any potentially significant impacts associated with an accidental release of hazardous materials into the environment.

As described in Section 6, Geology and Soils, above, statutorily required standard measures, including the preparation and implementation of a SWPPP that meets the statutory requirements of the Statewide General Construction Permit will also ensure that potential impacts from accidental leaks or spills are avoided and minimized. The San Luis Obispo County Department of Community Health, Environmental Division, requires a Hazardous Materials Business Plan for operation of the WWTF, which would be revised and submitted for re-approval pursuant to the requirements of HAZ/mm-1. Cal/OSHA also requires construction projects to implement safe hazardous material handling, transfer, storage, and maintenance. Projects are required to have designated staging/maintenance areas, standard operating procedures, and emergency response planning for the use of hazardous materials on-site.

The project is not located within ¼ mile of any school and is not within an Airport Review Area. The project would not and would not affect access or roadways or conflict with any regional emergency response or evacuation plan.

The proposed project modifications would not result in any significant impacts related to hazards or hazardous materials beyond those identified in the 2008 WWTP EIR. Mitigation in the 2008 WWTP EIR would apply equally to the new project components to reduce any potential impacts to less than significant. Therefore, no further analysis of this issue in the SEIR is necessary.

8. NOISE	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
<i>Will the project:</i>				
a) Expose people to noise levels that exceed the County Noise Element thresholds?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Generate permanent increases in the ambient noise levels in the project vicinity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Cause a temporary or periodic increase in ambient noise in the project vicinity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose people to severe noise or vibration?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) If located within the Airport Review designation or adjacent to a private airstrip, expose people residing or working in the project area to severe noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Noise

The project is not considered a “noise sensitive land use” and is not within close proximity to loud noise sources. The Gregg Ranch disposal site and the other modified project components are predominantly located within undeveloped rural and agricultural areas; the project is not within an Airport Review Area or in proximity to any public or private airstrip. Based on the County Noise Element’s projected future noise generation from known stationary and vehicle-generated noise sources, the project is within an acceptable threshold area. The project would not generate loud noises, or conflict with surrounding uses due to ambient noise levels. Based on aerial photos, the nearest sensitive receptors (three single-family residences) are located approximately 500 feet from the proposed Gregg Ranch improvements, and the storage ponds, spray field, and sludge drying bed are not anticipated to generate significant levels of operational noise. Therefore, the project will not conflict with any sensitive noise receptors.

Project construction would result in a temporary increase in ambient noise levels in the project area, including noise from construction equipment and operations. Operation of the facility upgrades and long-term project maintenance would also generate increased noise levels associated with the operation of WWTF machinery, employee vehicles, generators in case of power outages, etc. These impacts were analyzed in the 2008 WWTP EIR and determined to be less than significant. The

generation of construction noise would be limited to daytime hours, as permitted by the County Noise Element and Noise Ordinance. Sound enclosures would be installed around plant equipment (i.e., blowers) to reduce operational noise. Sound attenuation due to the distance between potential noise sources and surrounding sensitive receptors would also reduce potential impacts.

The proposed project modifications would not result in any significant noise impacts beyond those identified in the 2008 WWTP EIR. Therefore, no further analysis of this issue in the SEIR is necessary.

9. POPULATION/HOUSING

<i>Will the project:</i>	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) <i>Induce substantial growth in an area either directly (e.g., construct new homes or businesses) or indirectly (e.g., extension of major infrastructure)?</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) <i>Displace existing housing or people, requiring construction of replacement housing elsewhere?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) <i>Create the need for substantial new housing in the area?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) <i>Other:</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Population/Housing

As documented in the 2008 EIR, the proposed project (as a whole) will remove an obstacle to the development of Phases II-VI of Tentative Tract 2162, allowing the development of 285 additional residential units at Oak Shores. Development of those units will result in all of the environmental impacts listed in the Oak Shores II Final EIR prepared and circulated in 1984, and all of the impacts listed in the Final Supplemental Environmental Impact Report for the Oak Shores Development Company Tract Map and Development Plan (Tract 2162, D940090D/Oak Shores II) prepared and circulated in 1996. In addition, the project includes a potential storage pond expansion area, which is anticipated to accommodate build-out of the Oak Shores Area. The project, as currently proposed, would result in a similar significant and unavoidable growth inducing impact previously identified, which will be discussed in the SEIR.

Construction and operational personnel would likely be sourced from the local labor force; therefore, the project would not induce substantial unplanned growth in the area and would not create the need for substantial new housing in the area to accommodate the workforce associated with this project. The project would not displace existing housing or require the development of replacement housing elsewhere.

10. PUBLIC SERVICES/UTILITIES

<i>Will the project have an effect upon, or result in the need for new or altered public services in any of the following areas:</i>	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) <i>Fire protection?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

10. PUBLIC SERVICES/UTILITIES

Will the project have an effect upon, or result in the need for new or altered public services in any of the following areas:

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
b) Police protection (e.g., Sheriff, CHP)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Roads?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Solid Wastes?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Other: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Public Services

Setting. The project area is served by the following public services/facilities:

Police: County Sheriff

Location: Templeton (Approximately 22 miles to the southeast)

Fire: Cal Fire (formerly CDF)

Hazard Severity: Very High

Response Time: 5-10 minutes

Location: Oak Shores Fire Station (Approximately 2 miles to the south)

School District: San Miguel Joint Union Elementary School District. and Paso Robles School District

The Community of Oak Shores is located in an area classified by the Cal Fire as high to very high risk for wildfires due to the area's rolling topography, high summer temperatures, local vegetation, and limited accessibility. The proposed project would not impose a new, significant demand for fire protection services. The proposed upgrades would be located within existing wastewater treatment plant facilities, except for the proposed Gregg Ranch disposal site, which is located in a 0 to 5 minute emergency response zone and high fire hazard zone. There is a Cal Fire station located in the community of Oak Shores and the project would not create demand for new fire facilities or personnel.

Wastewater treatment facility operations do not have a high demand for police protection. Expansion of the facilities to Gregg Ranch would not substantially affect existing demand on police protection services. Project implementation would not generate substantial population growth that would substantially increase public demands on schools, parks, or other public services and facilities. Impacts would be less than significant.

Consistent with the analysis in the 2008 WWTP EIR, project-related impacts on public services would be less than significant and proposed project modifications would not result in any significant impacts to public services beyond those identified in the 2008 WWTP EIR. Therefore, no further analysis of this issue in the SEIR is necessary.

11. RECREATION

Will the project:

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) Increase the use or demand for parks or other recreation opportunities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>



11. RECREATION

Will the project:

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
b) <i>Affect the access to trails, parks or other recreation opportunities?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) <i>Other _____</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Recreation

All homeowners within the private community of Oak Shores are required to be dues-paying members of the Oak Shores Community Association (OSCA). The OSCA operates and manages private community recreational facilities within the community, including a 63-slip marina, boat launch, campground, clubhouse, swimming pool, and miniature golf course. The Lake Nacimiento Recreational Area, which encompasses the Nacimiento and San Antonio Reservoirs, also provides substantial recreational opportunities to County residents and visitors.

The County's Parks and Recreation Element does not identify any existing or proposed trails going through Gregg Ranch or any other modified project component locations. The project would not have any adverse effects on existing or planned recreational opportunities in Oak Shores. The project is not proposed in a location that will affect, or create a significant additional need for, any trail, park, recreational resource, coastal access, and/or Natural Area. As documented in the 2008 EIR, construction of proposed improvements would result in the use of construction-related equipment and vehicle trips on roads shared with residents and visitors to the area. The anticipated delay would be minimal, and would not permanently affect access to recreational opportunities.

Operation of the WWTF upgrades could indirectly affect recreational resources in the Lake Nacimiento Recreational Area by facilitating build-out of the approved Oak Shores II development Phases II through VI. The increased demand could result in overcrowding of proximate recreational facilities and increased hazards related to increased recreational use such as boating. The 2008 WWTP EIR analyzed this potentially significant effect and concluded that impacts would be less than significant through implementation of mitigation identified in the Final EIR prepared for the Oak Shores II development. The proposed project modifications would not result in any different or increased impacts on recreational resources beyond those identified in the 2008 WWTP EIR.

Consistent with the analysis in the 2008 WWTP EIR, project-related impacts on recreational resources would be less than significant. Therefore, no further analysis of this issue in the SEIR is necessary.

12. TRANSPORTATION/CIRCULATION

Will the project:

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
a) <i>Increase vehicle trips to local or areawide circulation system?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) <i>Reduce existing "Level of Service" on public roadway(s)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) <i>Create unsafe conditions on public roadways (e.g., limited access, design features, sight distance, slow vehicles)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

12. TRANSPORTATION/CIRCULATION

Potentially Significant Impact can & will be mitigated Insignificant Impact Not Applicable

Will the project:

d) <i>Provide for adequate emergency access?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) <i>Conflict with an established measure of effectiveness for the performance of the circulation system considering all modes of transportation (e.g. LOS, mass transit, etc.)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) <i>Conflict with an applicable congestion management program?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) <i>Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) <i>Result in a change in air traffic patterns that may result in substantial safety risks?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) <i>Other:</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Transportation

The County has established the acceptable Level of Service (LOS) on roads for this rural area as “C” or better. The existing road network in the area, including the project’s access street(s) (Interlake Road, Lynch Canyon Road, Oak Shores Drive, Ridge Rider Road) is operating at acceptable levels. Based on existing road speeds and configuration (vertical and horizontal road curves), sight distance is considered acceptable.

Project construction would not substantially affect traffic patterns and would not generate significant additional vehicle trips in the project area. Although there would be some vehicle traffic associated with hauling heavy equipment and construction materials to the site, this would be of limited duration and the proposed project modifications would not substantially change the amount of construction related traffic that would occur. Construction trips that would have originally been generated at the existing spray field and Kavanaugh percolation basin sites, would be rerouted to Gregg Ranch, but there are no more restrictive traffic conditions in the new project areas that would worsen potential construction-related traffic impacts. Material at the Gregg Ranch disposal site would be balanced onsite and would not generate additional construction traffic.

The 2-mile force main pipeline would be constructed in the road shoulder area adjacent to Lynch Canyon Road and Oak Shores Drive, and would not require substantial road or lane closures, though local traffic may be temporarily halted or diverted to allow construction equipment access to work areas along Oak Shores Drive (i.e., potential short term single lane operations and flagging). This impact was identified in the 2008 WWTP EIR as a result of the proposed improvements at the existing spray field and storage pond location and mitigation was identified to reduce potential impacts to less than significant:

“TC Impact 1 Implementation of construction activities has the potential to cause encroachment on or diversion of traveling traffic and safety concerns for workers along public right-of-way.

TC/mm-1 Prior to start of construction, the County will prepare and implement a Traffic Control plan to route traffic, pedestrians, and bicyclists safely around the construction area, including access areas.”

Implementation of this mitigation measure would reduce potentially significant impacts related to construction traffic to less than significant.

Operation of the modified project components would not generate additional traffic trips above those analyzed in the 2008 WWTP EIR. The proposed sludge drying beds have been reduced in size from 10,000 square feet to 5,000 square feet; therefore, construction related and operational haul trips would be reduced for this project component. Operational trips associated with maintenance of the Gregg Ranch spray field and storage pond would be minimal and generally consistent with those associated with the 2008 components (Kavanaugh percolation basins). Therefore, operational traffic and transportation impacts would be less than significant and consistent with those identified in the 2008 WWTP EIR.

The proposed project modifications would not result in any different or more severe impacts beyond those identified in the 2008 WWTP EIR and identified mitigation measures would apply to the new project components to reduce any potentially significant impacts to less than significant. Therefore, no different, new, or more severe operational impacts would occur and long-term traffic related impacts would be less than significant. Therefore, no further analysis of this issue in the SEIR is necessary.

13. WASTEWATER	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
<i>Will the project:</i>				
a) <i>Violate waste discharge requirements or Central Coast Basin Plan criteria for wastewater systems?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) <i>Change the quality of surface or ground water (e.g., nitrogen-loading, day-lighting)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) <i>Adversely affect community wastewater service provider?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) <i>Other:</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Wastewater

Regulations and guidelines on proper wastewater system design and criteria are found within the County’s Plumbing Code (hereafter CPC; see Chapter 7 of the Building and Construction Ordinance [Title 19]), the “Water Quality Control Plan, Central Coast Basin” (Regional Water Quality Control Board [RWQCB] hereafter referred to as the “Basin Plan”), and the California Plumbing Code. These regulations include specific requirements for both on-site and community wastewater systems. These regulations are applied to all new wastewater systems.

The project, both as originally proposed in 2008 and as currently modified, has the potential to adversely affect the quality of surface or ground water as a result of spills or runoff of treated wastewater, elevated nitrate deposits, daylighting of effluent at ground surface or within a creek due to

discharge of excessive amounts of effluent, and contamination of groundwater due to percolation of wastewater with insufficient separation/infiltration characteristics.

The CSA-7A (Oak Shores) WWTF is regulated by the Regional Water Quality Control Board (RWQCB) under Waste Discharge Requirements (WDR) Order No. 01-130. The existing RWQCB permit references a build-out population of approximately 850 parcels and allows a maximum average daily flow of 100,000 gallons per day, averaged over the month. The WWTF is currently operating at acceptable levels and within the requirements of the RWQCB permit. The WDR requires implementation of a Monitoring and Reporting Program, including periodic analysis of constituents and parameters (i.e., solids and salt concentrations, biochemical oxygen demand) for the community water supply, plant influent, treatment ponds, disposal area, and biosolids. The RWQCB WDR 01-130 protects groundwater from contamination by requiring the following limitations:

- The discharges will not cause a significant increase of mineral constituent concentrations in underlying ground waters,
- The discharge will not cause concentrations of chemicals and radionuclides in groundwater to exceed limits set forth in Title 22, Chapter 15, Articles 4 (inorganic and physical quality), 4.5 (trihalomethanes), 5 (radioactivity), and 5.5 (organic chemicals) of the California Code of Regulations; and,
- Compliance with groundwater limitations will be determined by comparing upgradient and downgradient groundwater monitoring and well data.

The project proposes upgrades and expansion of the existing wastewater treatment facilities to provide additional capacity in the CSA-7A service area and meet existing obligations and approved future development phases. To minimize the potential for incidental spills, the existing facility is equipped with stand-by generators and back-up power in the event of an emergency. Equipment within the plant is designed to accommodate peak flow conditions. The County must also comply with the requirements of the RWQCB and regulations of the California Water Code. The project would be required to obtain revised discharge permits from the RWQCB to ensure compliance with the Central Coast Basin Plan criteria for wastewater systems and other applicable regulations. Design of the new facilities would incorporate the requirements set forth in the new WDR and compliance with the WDR would be required before the improved wastewater treatment plant can operate.

Based on the Wastewater System Capacity Study Addendum No. 1 for the San Luis Obispo County Service Area 7-A (Oak Shores) prepared for the project (Wallace Group 2015), and the Results of Percolation Testing and Subsurface Exploration (Wallace Group 2014), percolation rates within the proposed disposal area ranged between 0.67 to 92 minutes per inch, with an average infiltration rate of 12 minutes per inch. No subsurface water was encountered in the test pits, which ranged between 5 and 10 feet in depth.

Effluent at the existing spray fields was tested during preparation of the 2008 WWTP EIR and compared to water quality of existing groundwater at the Kavanaugh percolation site. This testing revealed that effluent water quality for all noted constituents was lower in concentration than the existing underlying groundwater, except for nitrate. The County proposes to implement improvements to the wastewater treatment plant by using Biolac Wave Oxidation technology, which would improve effluent quality. In addition, the County proposes to continue implementing the Monitoring and Reporting Program required by the current WDR and would be required to implement any new monitoring and reporting requirements in the revised WDR. The County must also comply with the requirements of the RWQCB and regulations of the California Water Code. Compliance with these existing regulations, permit requirements, and the revised WDR, and ongoing groundwater monitoring and reporting, would ensure potential impacts to groundwater quality are less than significant.

The Gregg Ranch spray field would be bermed to prevent runoff from leaving the site and off-site flows from entering the site. Regulations and standards identified in Section 6, Geology and Soils, to minimize potential impacts associated with runoff, erosion, and sedimentation, would also avoid and

minimize potential impacts to proximate drainages and other surface waters. Implementation of proposed runoff control measures (berming, permanent BMPs) and compliance with RWQCB WDR requirements would reduce potential impacts to less than significant.

The proposed project modifications would not result in any new, different, or more severe impacts to surface or ground waters, or related to wastewater discharges, above those that were identified and analyzed in the 2008 WWTP EIR. Potential impacts associated with the new project components would be less than significant; therefore, no further analysis of this issue in the SEIR is necessary.

14. WATER & HYDROLOGY

Will the project:

	Potentially Significant	Impact can & will be mitigated	Insignificant Impact	Not Applicable
QUALITY				
a) <i>Violate any water quality standards?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) <i>Discharge into surface waters or otherwise alter surface water quality (e.g., turbidity, sediment, temperature, dissolved oxygen, etc.)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) <i>Change the quality of groundwater (e.g., saltwater intrusion, nitrogen-loading, etc.)?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) <i>Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide additional sources of polluted runoff?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) <i>Change rates of soil absorption, or amount or direction of surface runoff?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) <i>Change the drainage patterns where substantial on- or off-site sedimentation/ erosion or flooding may occur?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) <i>Involve activities within the 100-year flood zone?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
QUANTITY				
h) <i>Change the quantity or movement of available surface or ground water?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) <i>Adversely affect community water service provider?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) <i>Expose people to a risk of loss, injury or death involving flooding (e.g., dam failure, etc.), or inundation by seiche, tsunami or mudflow?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
k) <i>Other: _____</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Water & Hydrology

Water Quality

For a discussion of water quality issues, refer to Section 13, Wastewater, above. The project would not violate water quality standards, discharge into surface waters, or otherwise alter surface or ground water quality. The County proposes to continue implementing the Monitoring and Reporting Program required by the current WDR and would be required to implement any new monitoring and reporting requirements in the revised WDR. The County must also comply with the requirements of the RWQCB and regulations of the California Water Code. Compliance with statutorily required standard measures, including the preparation and implementation of an erosion and sedimentation plan and a SWPPP that meets the statutory requirements of the Statewide General Construction Permit will ensure that impacts from site alteration, grading and construction are less than significant.

No portion of the project site is within the 100-year flood zone. The project would necessarily change soil absorption rates at the Gregg Ranch disposal site, but these activities would not result in significant adverse effects on water quality for the reasons discussed above. The Gregg Ranch spray field and storage pond would be bermed to prevent runoff from leaving the site and off-site flows from entering the site. All other areas of the project site would be returned to original conditions after construction; therefore, the project would not substantially alter drainage patterns or substantially contribute to stormwater flows. The project would not exceed capacity of any existing stormwater system or drainage facility. Compliance with existing regulations, permit requirements, and the revised WDR, and ongoing groundwater monitoring and reporting, would ensure potential impacts to surface and ground water quality are less than significant.

Water Quantity

Water will be supplied by the Nacimiento Water Company from a gallery well system in the sediments directly underlying the reservoir. The infrastructure for the water supply is already in place, and will require no further construction. The proposed project does not include any features that would result in an increase in water demand in the long-term. In the short-term, water would be required for dust suppression during construction. Based on available information, the proposed water source is not known to have any significant availability or quality problems and potential water quantity impacts would be the same as those analyzed in the 2008 WWTP EIR.

Drainage

The topography of the project area ranges from nearly level to very steeply sloping. An unnamed blue-line drainage crosses just north of the proposed spray field at Gregg Ranch. The proposed 2-mile long force main pipeline would also cross several additional blue-line drainages and potentially jurisdictional waters. Jurisdictional waters and these drainages will be addressed in the Biological Resources section of the SEIR.

As described in the NRCS Soil Survey, the soil surface at Gregg Ranch is considered to have moderate erodibility. Along steeper portions of the pipeline route, erodibility is high.

DRAINAGE – The following relates to the project's drainage aspects:

Within the 100-year Flood Hazard designation? No

Closest creek? unnamed blue line creeks Distance? Approximately 50 feet

Soil drainage characteristics: Well drained

For areas where drainage is identified as a potential issue, the Department of Public Works prepares a drainage plan to minimize potential drainage impacts. This plan would need to address measures such as: constructing on-site retention or detention basins, or installing surface water flow dissipaters. This plan would also need to show that the increased surface runoff would have no more impacts than that caused by historic flows.

The potential for new or more severe significant adverse impacts related to sedimentation and erosion has been discussed in the Geology and Soils section, above.

The modified project would not result in new, different, or more severe impacts related to water quality, water quantity, drainage, or hydrology, beyond those analyzed in the 2008 WWTP EIR. Potential impacts resulting from the new project components would be less than significant after compliance with existing regulations, permit requirements, and ongoing monitoring requirements. Therefore, further discussion of this issue in the SEIR is not necessary.

15. LAND USE	Inconsistent	Potentially Inconsistent	Consistent	Not Applicable
<i>Will the project:</i>				
a) <i>Be potentially inconsistent with land use, policy/regulation (e.g., general plan [County Land Use Element and Ordinance], local coastal plan, specific plan, Clean Air Plan, etc.) adopted to avoid or mitigate for environmental effects?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) <i>Be potentially inconsistent with any habitat or community conservation plan?</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) <i>Be potentially inconsistent with adopted agency environmental plans or policies with jurisdiction over the project?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) <i>Be potentially incompatible with surrounding land uses?</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) <i>Other:</i> _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Land Use

The project modifications would result in the expansion of an industrial public facility into a previously undeveloped area. The proposed modifications could conflict with applicable plans and policies adopted to avoid or mitigate environmental impacts in the project area. The proposed wastewater treatment and disposal facilities could also be inconsistent with surrounding land uses, which predominantly consist of open space and agricultural uses.

Existing land use designations and uses at Gregg Ranch (including the Williamson Act contract in effect on the parcel) and the potential inconsistency of the project with adopted plans and policies and surrounding land uses were not previously analyzed in the 2008 WWTP EIR; therefore, this issue will be analyzed in the SEIR. The existing environmental and regulatory setting of project components analyzed in 2008 have not changed; therefore, this section will only analyze the potential land use related impacts resulting from the new or modified project components. The project is not within or adjacent to any habitat or community conservation plans; therefore, this issue is not applicable.

16. MANDATORY FINDINGS OF SIGNIFICANCE

Potentially Significant Impact can & will be mitigated Insignificant Impact Not Applicable

Will the project:

- a) ***Have the potential to 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, 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 pre-history?***

- b) ***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)***

- c) ***Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?***

For further information on CEQA or the County’s environmental review process, please visit the County’s web site at “www.sloplanning.org” under “Environmental Information”, or the California Environmental Resources Evaluation System at: http://www.ceres.ca.gov/topic/env_law/ceqa/guidelines for information about the California Environmental Quality Act.

Exhibit A - Initial Study References

The following checked (“”) reference materials have been used in the environmental review for the proposed project and are hereby incorporated by reference into the Initial Study. The following information is available at the County Planning and Building Department.

Project File for the Subject Application

County documents

- Coastal Plan Policies
- Framework for Planning (Coastal/Inland)
- General Plan (Inland/Coastal), includes all maps/elements; more pertinent elements:
 - Agriculture Element
 - Conservation & Open Space Element
 - Economic Element
 - Housing Element
 - Noise Element
 - Parks & Recreation Element/Project List
 - Safety Element
- Land Use Ordinance (Inland/Coastal)
- Building and Construction Ordinance
- Public Facilities Fee Ordinance
- Real Property Division Ordinance
- Affordable Housing Fund
- Airport Land Use Plan
- Energy Wise Plan
- Nacimiento Area Plan, The Area Plans (Inland)

Design Plan

Specific Plan

Annual Resource Summary Report

Circulation Study

Other documents

- Clean Air Plan/APCD Handbook
- Regional Transportation Plan
- Uniform Fire Code
- Water Quality Control Plan (Central Coast Basin – Region 3)
- Archaeological Resources Map
- Area of Critical Concerns Map
- Special Biological Importance Map
- CA Natural Species Diversity Database
- Fire Hazard Severity Map
- Flood Hazard Maps
- Natural Resources Conservation Service Soil Survey for SLO County
- GIS mapping layers (e.g., habitat, streams, contours, etc.)
- Other Final Environmental Impact Report for the CSA 7 (Oak Shores) Wastewater Treatment Plant Upgrade Project (May 2008)

In addition, the following project specific information and/or reference materials have been considered as a part of the Initial Study:

Albion Environmental, Inc. 2016. Final Cultural Resource Assessment Services for the Oak Shores Waste Water Facility Project, San Luis Obispo County, California. December 2016.

Department of Toxic Substances Control. 2016. Envirostor. Available at: <http://www.envirostor.dtsc.ca.gov/public/>. Accessed June 9, 2016.

Earth Systems Pacific. 2014. Tract 2162 – Oak Shores Wastewater Disposal Area – APN No. 080-021-005 Oak Shores Area of San Luis Obispo County, California. April 9, 2014.

Morro Group, Inc. 2008. Final Environmental Impact Report for the County Service Area 7 (Oak Shores) Wastewater Treatment Plan Upgrade Project, SCH No. 2007031107. Prepared for the County of San Luis Obispo. May 2008.

State Water Resources Control Board. 2016. Geotracker. Available at: <http://geotracker.waterboards.ca.gov/>. Accessed June 9, 2016.

SWCA Environmental Consultants. 2017. Oak Shores Wastewater Treatment Plan Upgrade Project – Phase I Archaeological Survey. July 2017.

United States Department of Agriculture. 2016. Custom Soil Resource Report for San Luis Obispo County, California, Paso Robles Area. June 6, 2016.

Wallace Group. 2015. Wastewater System Capacity Study Addendum No. 1 for San Luis Obispo County Service Area 7-A (Oak Shores). January 26, 2015.

Wallace Group. 2016. Preliminary Pipeline and Disposal Field Design.

APPENDIX B

Air Quality and Greenhouse Gas Emissions Background Information



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TECHNICAL MEMORANDUM

Date: 1/28/2018

To: Emily Creel, Planning Team Lead

From: Kurt Legleiter

Subject: Oak Shores WWTP Air Quality & GHG Emissions Modeling Report

Emily,

Attached is a summary of the emissions modeling analysis prepared for the Oak Shores Wastewater Treatment Plant (WWTP) Improvements Project. The emissions modeling analysis was conducted for short-term construction and long-term operational conditions and included analysis of criteria pollutants, toxic air contaminants, and greenhouse gas (GHG) emissions. A summary of San Luis Obispo County Air Pollution Control District's (SLOAPCD's) recommended thresholds of significance has also been included. Emissions modeling assumptions and results are included in Appendix A of this report.

SLOAPCD SIGNIFICANCE THRESHOLDS

To assist in the evaluation of air quality impacts, the SLOAPCD has developed recommended significance thresholds, which are contained in the SLOAPCD's *CEQA Air Quality Handbook* (2012). For the purposes of this analysis, project emissions are considered potentially significant impacts if any of the following SLOAPCD thresholds are exceeded:

Construction Emissions of Criteria Air Pollutants

The threshold criteria established by the SLOAPCD to determine the significance and appropriate mitigation level for a project's short-term construction emissions are presented in Table 5 and discussed, as follows:

ROG and NO_x Emissions

- Daily: For construction projects exceeding the 137 lbs/day threshold requires Standard Mitigation Measures;
- Quarterly – Tier 1: For construction projects exceedance of the 2.5 ton/quarter threshold requires Standard Mitigation Measures and Best Available Control Technology (BACT) for construction equipment. Off-site mitigation may be required if feasible mitigation measures are not implemented, or if no mitigation measures are feasible for the project; and,
- Quarterly – Tier 2: For construction projects exceeding the 6.3 ton/qtr threshold, Standard Mitigation Measures, BACT, implementation of a Construction Activity Management Plan (CAMP) and off-site mitigation are required.



Table 1. SLOAPCD Thresholds of Significance for Construction Impacts

Pollutant	Threshold ⁽¹⁾		
	Daily (lbs/day)	Quarterly Tier 1 (tons)	Quarterly Tier 2 (tons)
Ozone Precursors (ROG + NO _x) ⁽²⁾	137	2.5	6.3
Diesel Particulate Matter (DPM) ⁽²⁾	7	0.13	0.32
Fugitive Particulate Matter (PM ₁₀), Dust	None	2.5	None
<p>1. Daily and quarterly emissions thresholds are based on the California Health & Safety Code and the ARB Carl Moyer Guidelines.</p> <p>2. Any project with a grading area greater than 4.0 acres of worked area can exceed the 2.5 tons PM₁₀ quarterly threshold.</p>			

Diesel Particulate Matter (DPM) Emissions

- Daily: For construction projects expected to be completed in less than one quarter, exceedance of the 7 lbs/day threshold requires Standard Mitigation Measures;
- Quarterly - Tier 1: For construction projects lasting more than one quarter, exceedance of the 0.13 tons/quarter threshold requires Standard Mitigation Measures, BACT for construction equipment; and,
- Quarterly - Tier 2: For construction projects lasting more than one quarter, exceedance of the 0.32 ton/qtr threshold requires Standard Mitigation Measures, BACT, implementation of a CAMP, and off-site mitigation.

Fugitive Particulate Matter (PM₁₀), Dust Emissions

- Quarterly: Exceedance of the 2.5 ton/qtr threshold requires Fugitive PM₁₀ Mitigation Measures and may require the implementation of a CAMP.

Operational Emissions of Criteria Air Pollutants

Criteria Air Pollutants

The threshold criteria established by the SLOAPCD to determine the significance and appropriate mitigation level for long-term operational emissions from a project are presented in Table 6.

Toxic Air Contaminants – Cancer & Non-Cancer Health Risks

SLOAPCD’s recommended significance thresholds for health risks are 10 in a million for excess cancer cases and a hazard index of one for chronic or acute non-cancer risks.



Table 2. SLOAPCD Thresholds of Significance for Operational Impacts

Pollutant	Threshold ⁽¹⁾	
	Daily (lbs/day)	Annual (tons/year)
Ozone Precursors (ROG + NO _x) ⁽²⁾	25	25
Diesel Particulate Matter (DPM) ⁽²⁾	1.25	None
Fugitive Particulate Matter (PM ₁₀), Dust	25	25
CO	550	None

1. Daily and annual emissions thresholds are based on the California Health & Safety Code Division 26, Part 3, Chapter 10, Section 40918 and the ARB Carl Moyer Guidelines for DPM.
 2. CalEEMod – use winter operational emission data to compare to operational thresholds.

Greenhouse Gas Emissions

SLOAPCD’s GHG significance thresholds include one qualitative threshold and two quantitative thresholds options for evaluation of operational GHG emissions. The qualitative threshold option is based on a consistency analysis in comparison to a Qualified Greenhouse Gas Reduction Strategy, or equitably similar adopted policies, ordinances and programs. If a project complies with a Qualified Greenhouse Gas Reduction Strategy that is specifically applicable to the project, then the project would be considered to have a less-than-significant impact. The two quantitative threshold options include: 1) a bright-line threshold of 1,150 MTCO₂e/year; and 2) an efficiency threshold of 4.9 MTCO₂e/service population (residents+employees)/year. An additional GHG significance threshold of 10,000 MTCO₂e/year is proposed for industrial stationary sources. The applicable GHG significance threshold to be used would depend on the type of project being proposed. Projects with GHG emissions that do not exceed the selected threshold would be considered to have a less-than-significant impact on the environment and would not conflict with applicable GHG-reduction plans, policies, or regulations.

EMISSIONS MODELING METHODOLOGY

Short-term construction emissions were quantified using the California Emissions Estimator Model (CalEEMod), version 2016.3.2, based on estimated construction schedules, vehicle use, and off-road equipment anticipated to be required during construction. Emissions were calculated for both daily and annual conditions. Refer to Appendix A for emissions modeling assumptions and results.

Evaporative emissions associated with primary wastewater treatment processes were quantified using flow-based emission factors derived from the *TriTAC Guidance Document on Control Technology for VOC Air Emissions from Publicly Owned Treatment Works (POTWs)*(1994). These emission factors were developed in a cooperative effort of POTWs and air regulatory agencies located in California. Emission factors contained in the TriTAC guidance document were derived from a combination of data generated by the Pooled Emissions Estimation Program (PEEP), the Joint Emissions Inventory Program (JEIP) submitted to the SCAQMD per Rule



1179, and toxics inventories from individual California POTWs. Refer to Appendix A for emissions modeling assumptions and results.

Long-term increases of toxic air contaminants were quantified based on emission factors derived from the *TriTAC Guidance Document on Control Technology for VOC Air Emissions from Publicly Operated Treatment Works* for the primary WWTP processes proposed to be installed. Associated health risks Potential exposure to TACs and were assessed based on a screening-level health risk assessment prepared for evaporative emissions of TACs associated with the proposed improvements.

SUMMARY OF EMISSIONS MODELING RESULTS

Daily Construction Emissions of Criteria Air Pollutants

Assuming that all improvements were to be constructed on the same day, the proposed project would generate maximum daily emissions of approximately 74.2 lbs/day of ROG+NO_x and 3.6 lbs/day of exhaust PM₁₀. Daily emissions would not exceed SLOAPCD's significance thresholds of 137 lbs/day ROG+NO_x or 7 lbs/day of exhaust PM₁₀ (Refer to Table 3).

Annual Construction Emissions of Criteria Air Pollutants

The proposed project would generate maximum annual emissions of approximately 1.7 tons/year of ROG+NO_x, 0.3 tons/year of fugitive PM₁₀, and 0.8 tons/year of exhaust PM₁₀. Quarterly emissions would be less and would not exceed SLOAPCD's significance thresholds of 2.5 tons/ quarter of ROG+NO_x, 2.5 tons/ quarter of fugitive PM₁₀, or 0.13 tons/quarter of exhaust PM₁₀ (Refer to Table 4).

Daily Operational Emissions of Criteria Air Pollutants

The proposed project would generate maximum daily emissions of approximately 1.9 lbs/day of ROG+NO_x, 1.8 lbs/day of CO, and 0.1 lbs/day of exhaust PM₁₀. Daily emissions of fugitive PM₁₀ would be negligible. Daily emissions would not exceed SLOAPCD's significance thresholds of 25 lbs/day ROG+NO_x, 550 lbs/day of CO, 25 lbs/day of fugitive PM₁₀, or 1.25 lbs/day of exhaust PM₁₀ (Refer to Table 5).

Annual Operational Emissions of Criteria Air Pollutants

The proposed project would generate maximum annual emissions of less than 0.1 tons/year of ROG+NO_x. Annual emissions of fugitive PM₁₀ would be negligible. Annual emissions would not exceed SLOAPCD's significance thresholds of 25 tons/year of ROG+NO_x or 25 tons/year of fugitive PM₁₀ (Refer to Table 6).

Exposure to Toxic Air Contaminants

Evaporative TACs emitted by WWTPs are typically considered minor. Because most emissions of TACs occur during the treatment process in which dissolved volatile organic compounds are volatilized, emissions of TACs are generally considered to be roughly proportional to the wastewater influent flow rates associated with the



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individual treatment processes. A screening-level health risk assessment was prepared to analyze cancer, chronic non-cancer, and acute non-cancer health risks. Based on the assessment conducted, TACs emitted by wastewater treatment processes would result in predicted increases in excess cancer risks of approximately 0.1 in a million and the predicted hazard index for non-cancer acute and chronic risks would be less than 0.1 for both onsite and offsite receptors. Predicted health risks would not exceed SLOAPCD's recommended significance thresholds of 10 in a million for excess cancer cases or a hazard index of one for chronic or acute non-cancer risks.

Annual Greenhouse Gas Emissions

The proposed project would generate approximately 103 MTCO₂e/year. Operational emissions would not exceed SLOAPCD's recommended significance threshold of 1,150 MTCO₂e/year.



Table 3. Daily Construction Emissions

CONSTRUCTION ACTIVITIES	EMISSIONS (LBS/DAY)											
	ROG	NO _x	ROG+NO _x	CO	SO ₂	PM10			PM2.5			
						FUG	EXH	TOT	FUG	EXH	TOT	
SLUDGE DRYING BEDS												
ON-SITE	2.1	24.1	26.2	10.7	0.0	6.0	1.1	7.1	3.3	1.0	4.3	
OFF-SITE	0.1	0.6	0.7	0.6	0.0	0.1	0.0	0.1	0.0	0.0	0.0	
TOTAL	2.2	24.7	26.9	11.3	0.0	6.1	1.1	7.2	3.3	1.0	4.3	
STORAGE POND AND SPRAY FIELDS												
ON-SITE	2.1	24.1	26.2	10.7	0.0	6.6	1.1	7.6	3.4	1.0	4.4	
OFF-SITE	0.1	0.1	0.2	0.5	0.0	0.1	0.0	0.1	0.0	0.0	0.0	
TOTAL	2.2	24.2	26.4	11.2	0.0	6.7	1.1	7.7	3.4	1.0	4.4	
WWTP UPGRADES												
ON-SITE	0.2	2.1	2.3	1.8	0.0	0.0	0.2	0.2	0.0	0.1	0.1	
OFF-SITE	0.1	0.6	0.7	0.6	0.0	0.1	0.0	0.1	0.0	0.0	0.0	
TOTAL	0.3	2.7	3.0	2.4	0.0	0.1	0.2	0.3	0.0	0.1	0.1	
LIFT STATION AND PIPELINE												
ON-SITE	0.8	7.6	8.4	5.7	0.0	0.0	0.6	0.6	0.0	0.5	0.5	
OFF-SITE	0.1	0.8	0.9	0.6	0.0	0.1	0.0	0.1	0.0	0.0	0.0	
TOTAL	0.9	8.4	9.3	6.3	0.0	0.1	0.6	0.7	0.0	0.5	0.5	
SEWAGE COLLECTION SYSTEM IMPROVEMENTS												
ON-SITE	0.8	7.6	8.4	5.7	0.0	0.0	0.6	0.6	0.0	0.5	0.5	
OFF-SITE	0.1	0.1	0.2	0.5	0.0	0.1	0.0	0.1	0.0	0.0	0.0	
TOTAL	0.9	7.7	8.6	6.2	0.0	0.1	0.6	0.7	0.0	0.5	0.5	
MAX. DAILY EMISSIONS*:	6.5	67.0	74.2	37.4	0.1	13.1	3.6	16.6	6.9	3.1	10.0	
SIGNIFICANCE THRESHOLDS:	--	--	137	--	--	--	7	--	--	--	--	
EXCEEDS THRESHOLDS?:	--	--	NO	--	--	--	NO	--	--	--	--	

• Conservatively assumes all construction activities occurring simultaneously.



Table 4. Annual Construction Emissions

CONSTRUCTION PERIOD	EMISSIONS (TONS/YEAR)										
	ROG	NO _x	ROG+NO _x	CO	SO ₂	PM10			PM2.5		
						FUG	EXH	TOT	FUG	EXH	TOT
TOTAL ANNUAL EMISSIONS	0.2	1.5	1.7	0.9	0.0	0.3	0.08	0.4	0.1	0.1	0.2
AVG. QUARTERLY EMISSIONS	0.1	0.4	0.4	0.2	0.0	0.1	0.02	0.1	0.0	0.0	0.1
QUARTERLY SIGNIFICANCE THRESHOLDS:	--	--	2.5	--	--	2.5	0.13	--	--	--	--
EXCEEDS THRESHOLDS?:	--	--	NO	--	--	NO	NO	--	--	--	--

Table 5. Daily Operational Emissions

SOURCE	EMISSIONS (LBS/DAY)										
	ROG	NO _x	ROG+NO _x	CO	SO ₂	PM10			PM2.5		
						FUG	EXH	TOT	FUG	EXH	TOT
EVAPORATIVE PROCESSES	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ENERGY USE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
OFF-ROAD EQUIPMENT	0.3	1.5	1.8	1.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1
WORKER COMMUTE	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
HAUL TRUCKS	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL:	0.3	1.6	1.9	1.8	0.0	0.0	0.1	0.1	0.0	0.1	0.1
SIGNIFICANCE THRESHOLDS:	--	--	25	550	--	25	1.25	--	--	--	--
EXCEEDS THRESHOLDS?:	--	--	NO	NO	--	NO	NO	--	--	--	--



Table 6. Annual Operational Emissions

SOURCE	EMISSIONS (TONS/YEAR)										
	ROG	NO _x	ROG+NO _x	CO	SO ₂	PM ₁₀			PM _{2.5}		
						FUG	EXH	TOT	FUG	EXH	TOT
EVAPORATIVE PROCESSES	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ENERGY USE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OFF-ROAD EQUIPMENT	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WORKER COMMUTE	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HAUL TRUCKS	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL:	0.01	0.03	0.04	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00
SIGNIFICANCE THRESHOLDS:	--	--	25	--	--	25	--	--	--	--	--
EXCEEDS THRESHOLDS?:	--	--	NO	--	--	NO	--	--	--	--	--

Table 7. Operational GHG Emissions

SOURCE	MTCO ₂ e/YEAR
Evaporative Process Emissions	0.00
Energy Use	90.10
Off-road Equipment	1.90
Worker Commute	3.10
Haul Trucks	3.00
Amortized Const. Emissions	4.80
Total	102.90
SIGNIFICANCE THRESHOLD:	1,150
EXCEEDS SIGNIFICANCE THRESHOLD?:	NO



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APPENDIX A EMISSIONS MODELING

OPERATIONAL MODELING ASSUMPTIONS

Buildout average flow:

Existing electricity use:

New Employee Trips:

Number of individuals served:

Project Electricity Use:

Solids Generation:

Number of haul truck trips for dried sludge transport to landfill/composting facility:

Annual haul truck trips required for sludge transport to drying beds:

Installation of any new stationary sources of emissions:

New off-road equipment:

New processes to be installed:

0.61 MGD	
158,018	kWh/yr
2	DAILY
10,166	
308,364 kw-hr/year at buildout	
284,396 gal/year	
5/year	
71 truck trips/year	
None	
Front-end loader, 50 hp, diesel powered, 10-15 hours/month	
Headworks (1)	
Sludge Drying Beds	
Percolation Basins	

CONSTRUCTION MODELING ASSUMPTIONS

WWTP Upgrades

(New Headworks, Aerated Lagoon Modifications/Biolac Wave Oxidation Installation, Retrofit Stabilization Pond, Conversion of Aeration Basins)

Area of Disturbance:	0	sf
Amount of Exported Material:	0	cy
Amount of Imported Material:	0	cy
Construction Duration:	3	months

	Number	Hrs/Day	
Off-road Equipment Required:	Forklift	1	4
	Loader/Backhoe	1	4

Storage Pond & Spray Field (Greg Ranch Disposal Site)

Area of Disturbance:	7.5	acres	(Assumes material balanced on site)
Amount of Exported Material:	0	cy	
Amount of Imported Material:	0	cy	
Construction Duration:	2	months	

	Number	Hrs/Day	
Off-road Equipment Required:	Grader	1	8
	Excavator	1	8
	Dozer	1	8
	Loader/Backhoe	1	4

Lift Station & Pipeline (Greg Ranch Disposal Site)

Area of Disturbance:	2.5	acres	(Assumes 10560 lin feet (2 miles), ~10 feet width for pipeline & ~20 sf for lift station)
Amount of Exported Material:	1,200	cy	
Amount of Imported Material:	1,200	cy	
Construction Duration:	3	months	

	Number	Hrs/Day	
Off-road Equipment Required:	Loader/Backhoe	1	8
	Trencher	1	8
	Forklift	1	4
	Plate Compactor	1	4

Sludge Drying Beds (Gregg Ranch or Existing Treatment Plant)

Area of Disturbance:	0.2	acres	(Assumes 8,500 sf of disturbance)
Amount of Exported Material:	1,000	cy	
Amount of Imported Material:	100	cy	
Construction Duration:	2	months	

	Number	Hrs/Day	
Off-road Equipment Required:	Grader	1	8
	Excavator	1	8
	Dozer	1	8
	Loader/Backhoe	1	4

Sewage Collection System Improvements

Area of Disturbance:	1	acres	(Assumes max of 4200 lin feet, 10-12 feet width)
Amount of Exported Material:	0	cy	
Amount of Imported Material:	0	cy	
Construction Duration:	3	months	

	Number	Hrs/Day	
Off-road Equipment Required:	Loader/Backhoe	1	8
	Trencher	1	8
	Forklift	1	4
	Plate Compactor	1	4

CONSTRUCTION EMISSIONS SUMMARY

	EMISSIONS (LBS/DAY)										
	ROG	NOX	ROG+NOX	CO	SO2	PM10			PM2.5		
						FUG	EXH	TOT	FUG	EXH	TOT
SLUDGE DRYING BEDS											
ON-SITE	2.1	24.1	26.2	10.7	0.0	6.0	1.1	7.1	3.3	1.0	4.3
OFF-SITE	0.1	0.6	0.7	0.6	0.0	0.1	0.0	0.1	0.0	0.0	0.0
TOTAL	2.2	24.7	26.9	11.3	0.0	6.1	1.1	7.2	3.3	1.0	4.3
STORAGE POND AND SPRAY FIELDS											
ON-SITE	2.1	24.1	26.2	10.7	0.0	6.6	1.1	7.6	3.4	1.0	4.4
OFF-SITE	0.1	0.1	0.2	0.5	0.0	0.1	0.0	0.1	0.0	0.0	0.0
TOTAL	2.2	24.2	26.4	11.2	0.0	6.7	1.1	7.7	3.4	1.0	4.4
WWTP UPGRADES											
ON-SITE	0.2	2.1	2.3	1.8	0.0	0.0	0.2	0.2	0.0	0.1	0.1
OFF-SITE	0.1	0.6	0.7	0.6	0.0	0.1	0.0	0.1	0.0	0.0	0.0
TOTAL	0.3	2.7	3.0	2.4	0.0	0.1	0.2	0.3	0.0	0.1	0.1
LIFT STATION AND PIPELINE											
ON-SITE	0.8	7.6	8.4	5.7	0.0	0.0	0.6	0.6	0.0	0.5	0.5
OFF-SITE	0.1	0.8	0.9	0.6	0.0	0.1	0.0	0.1	0.0	0.0	0.0
TOTAL	0.9	8.4	9.3	6.3	0.0	0.1	0.6	0.7	0.0	0.5	0.5
SEWAGE COLLECTION SYSTEM IMPROVEMENTS											
ON-SITE	0.8	7.6	8.4	5.7	0.0	0.0	0.6	0.6	0.0	0.5	0.5
OFF-SITE	0.1	0.1	0.2	0.5	0.0	0.1	0.0	0.1	0.0	0.0	0.0
TOTAL	0.9	7.7	8.6	6.2	0.0	0.1	0.6	0.7	0.0	0.5	0.5
TOTAL ALL SOURCES:	6.5	67.7	74.2	37.4	0.1	13.1	3.6	16.6	6.9	3.1	10.0

	EMISSIONS (TONS/YEAR)										
	ROG	NOX	ROG+NOX	CO	SO2	PM10			PM2.5		
						FUG	EXH	TOT	FUG	EXH	TOT
TOTAL ANNUAL EMISSIONS	0.2	1.5	1.7	0.9	0.0	0.3	0.08	0.4	0.1	0.1	0.2
AVG. QUARTERLY EMISSIONS	0.1	0.4	0.4	0.2	0.0	0.1	0.02	0.1	0.0	0.0	0.1

OPERATIONAL EMISSIONS SUMMARY

	EMISSIONS (TONS/YEAR)										
	ROG	NOX	ROG+NOX	CO	SO2	PM10			PM2.5		
						FUG	EXH	TOT	FUG	EXH	TOT
Evaporative Process Emissions	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Energy Use	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Off-road Equipment	0.00	0.02	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Worker Commute	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Haul Trucks	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.01	0.03	0.04	0.04	0.00	0.00	0.00	0.01	0.00	0.00	0.00

	EMISSIONS (LBS/DAY)										
	ROG	NOX	ROG+NOX	CO	SO2	PM10			PM2.5		
						FUG	EXH	TOT	FUG	EXH	TOT
Evaporative Process Emissions	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Energy Use	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Off-road Equipment	0.3	1.5	1.8	1.7	0.0	0.0	0.1	0.1	0.0	0.1	0.1
Worker Commute	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Haul Trucks	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	0.3	1.6	1.9	1.8	0.0	0.0	0.1	0.1	0.0	0.1	0.1

	MTCO2E
Evaporative Process Emissions	0.00
Energy Use	90.10
Off-road Equipment	1.90
Worker Commute	3.10
Haul Trucks	3.00
Amortized Const. Emissions	4.80
Total	102.90

PROPOSED PROJECT - ADDITIONAL WWTP PROCESS EMISSIONS

UNIT PROCESS	NO. OF UNITS	FLOW/ UNIT (MGD)	TOTAL FLOW (MGD)	EF (LB/YR/MGD)												
				Total ROG/VOCs	BENZENE	ETHYL-BENZENE	TOLUENE	XYLENES	CHLOROFORM	METHYLENE CHLORIDE	TETRACHLORO-ETHYLENE	1,1,1-TRICHLOROETHANE	ACETONE	MEK	MIBK	
HEADWORKS-NON DUCTED	1	0.61	0.61	0.10	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
INLET OPEN CHANNEL FLOW METER	1	0.61	0.61	0.07	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ACTIVATED SLUDGE-DIFFUSED AIR	1	0.61	0.61	190.00	1.700	1.200	7.300	7.000	4.700	4.300	8.500	6.500	0.032	0.006	0.006	
FLOW EQUALIZATION	1	0.61	0.61	30.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	4.700	0.937	0.852
SECONDARY CLARIFIERS	1	0.61	0.61	12.00	0.000	0.000	0.000	0.000	0.038	0.070	0.021	0.012	12.100	2.410	2.190	
FINAL EFFLUENT EVAPORATION PONDS	1	0.61	0.61	523.56	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
SLUDGE DIGESTION - AEROBIC	1	0.61	0.61	10.25	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
SLUDGE CAKE TRUCK LOADING OPERATIONS	1	0.3	0.3	1.73	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
SLUDGE DRYING BED - STATIC	1	0.3	0.3	13.01	0	0	0	0	0	0	0	0	0	0	0	
OPEN SOLIDS HANDLING	1	0.3	0.3	10.00	0	0	240	290	0	0	0	0	0	0	0	

PROPOSED PROJECT - ADDITIONAL WWTP PROCESS EMISSIONS

TOTAL EMISSIONS (LBS/YR)

PROCESS	Total ROG/VOCs	BENZENE	ETHYL-BENZENE	TOLUENE	XYLENES	CHLOROFORM	METHYLENE CHLORIDE	TETRACHLORO-ETHYLENE	1,1,1-TRICHLORO-ETHANE	ACETONE**	METHYL ETHYL KETONE	MIBK**
HEADWORKS-NON DUCTED	0.061	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
INLET OPEN CHANNEL FLOW METER	0.043	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ACTIVATED SLUDGE-DIFFUSED AIR	115.900	1.037	0.732	4.453	4.270	2.867	2.623	5.185	3.965	0.020	0.004	0.004
FLOW EQUALIZATION-SECONDARY EFFLUENT	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SECONDARY CLARIFIERS	7.320	0.000	0.000	0.000	0.000	0.023	0.043	0.013	0.007	7.381	1.470	1.336
FINAL EFFLUENT EVAPORATION PONDS	319.372	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SLUDGE DIGESTION - AEROBIC	6.253	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SLUDGE CAKE TRUCK LOADING OPERATIONS	0.519	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SLUDGE DRYING BED - STATIC	3.903	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
OPEN SOLIDS HANDLING	3.000	0.000	0.000	72.000	87.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
TOTAL (LBS/YR):	456.37	1.04	0.73	76.45	91.27	2.89	2.67	5.20	3.97	7.40	1.47	1.34
TOTAL (LBS/DAY):	1.25	0.00	0.00	0.21	0.25	0.01	0.01	0.01	0.01	0.02	0.00	0.00
TOTAL (LBS/HR):		0.00012	0.00008	0.00873	0.01042	0.00033	0.00030	0.00059	0.00045	0.00084	0.00017	0.00015
TOTAL (TONS/YR):	0.228	0.001	0.000	0.038	0.046	0.001	0.001	0.003	0.002	0.004	0.001	0.001

TAC SCREENING RISK ASSESSMENT*

CANCER UNIT RISK/POTENCY FACTOR:	2.90E-05	2.50E-06	0.00E+00	0.00E+00	5.30E-06	1.00E-06	5.90E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RECEPTOR PROXIMITY ADJUSTMENT FACTOR:	1	1	1	1	1	1	1	1	1	1	1	1
NORMALIZATION FACTOR:	1.70E+03	1.70E+03	1.70E+03	1.70E+03	1.70E+03	1.70E+03	1.70E+03	1.70E+03	1.70E+03	1.70E+03	1.70E+03	1.70E+03
ACUTE EXPOSURE EFFECTS LEVEL	1.30E+03	0.00E+00	3.70E+04	2.20E+04	1.50E+02	1.40E+04	2.00E+04	6.80E+04	0.00E+00	1.30E+04	0.00E+00	0.00E+00
CHRONIC EXPOSURE EFFECTS LEVEL	6.00E+01	2.00E+03	3.00E+02	7.00E+02	3.00E+02	4.00E+02	3.50E+01	1.00E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CARCINOGENIC RISK:	5.11E-02	3.11E-03	0.00E+00	0.00E+00	2.60E-02	4.53E-03	5.21E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL CARCINOGENIC RISK:	1.37E-01	ONSITE	3.42E-02	OFFSITE RECEPTOR								
RISK CATEGORY:	LOW		LOW									
EXCESS RISK EXCEEDS 10 IN A MILLION?:	NO		NO									
NON-CARCINOGENIC ACUTE RISK:	1.366E-04	0.000E+00	3.538E-04	7.104E-04	3.299E-03	3.260E-05	0.000E+00	0.000E+00	0.000E+00	1.942E-05	0.000E+00	0.000E+00
TOTAL NON-CARCINOGENIC ACUTE RISK:	4.552E-03											
NON-CARCINOGENIC CHRONIC RISK:	2.96E-04	0.00E+00	4.36E-03	2.23E-03	1.65E-04	1.14E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
TOTAL NON-CARCINOGENIC CHRONIC RISK:	7.17E-03											
TOTAL NON-CARCINOGENIC RISK:	1.17E-02	ONSITE	2.93E-03	OFFSITE RECEPTOR								
RISK CATEGORY:	LOW		LOW									
EXCESS RISK EXCEEDS 10 IN A MILLION?:	NO		NO									

*Based on methodology derived from the CAPCOA Air Toxics "Hot Spots" Program, Facility Prioritization Guidelines (available at website url: <http://www.arb.ca.gov/ab2588/RRAP-IWRA/priguide.pdf>) and risk values obtained from the Consolidated Table of OEHA/ARB Approved Risk Assessment Health Values. February 14, 2011. Available at url: <http://www.arb.ca.gov/toxics/healthval/healthval.htm>.

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

Oak Shores WWTP Improvements - Construction
San Luis Obispo 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	1.00	1.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.2	Precipitation Freq (Days)	70
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	CH4 Intensity (lb/MWhr)	0.029	N2O Intensity (lb/MWhr)	0.006

1.3 User Entered Comments & Non-Default Data

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	100.00	60.00
tblConstructionPhase	NumDays	2.00	40.00
tblConstructionPhase	NumDays	1.00	40.00
tblGrading	AcresOfGrading	20.00	0.50
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LandUseSquareFeet	0.00	1.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Sludge Drying Beds
tblOffRoadEquipment	PhaseName		Storage Pond and Spray Fields
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblProjectCharacteristics	PrecipitationFrequency	44	70
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	55.00
tblTripsAndVMT	HaulingTripNumber	0.00	120.00

2.0 Emissions Summary

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2018	5-31-2018	0.6349	0.2735
2	6-1-2018	8-31-2018	0.1635	0.0911
3	9-1-2018	11-30-2018	0.2913	0.1542
4	12-1-2018	2-28-2019	0.1262	0.0651
		Highest	0.6349	0.2735

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	1.0000e-005	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						3.0000e-005
Energy	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
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						3.0000e-005

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

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	1.0000e-005	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000							3.0000e-005
Energy	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
Waste						0.0000	0.0000		0.0000	0.0000							0.0000
Water						0.0000	0.0000		0.0000	0.0000							0.0000
Total	1.0000e-005	0.0000	2.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000							3.0000e-005

	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

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Sludge Drying Beds	Site Preparation	1/15/2018	3/9/2018	5	40	Sludge Drying Beds
2	Storage Pond and Spray Fields	Grading	3/10/2018	5/4/2018	5	40	Storage Pond and Spray Fields
3	WWTP Upgrades	Building Construction	5/5/2018	7/27/2018	5	60	WWTP Upgrades
4	Lift Station & Pipeline	Trenching	7/28/2018	10/19/2018	5	60	Lift Station & Pipeline
5	Sewage Collection System Improvements	Trenching	10/20/2018	1/11/2019	5	60	Sewage Collection System Improvements

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Sludge Drying Beds	Excavators	1	8.00	158	0.38
Sludge Drying Beds	Graders	1	8.00	187	0.41
Sludge Drying Beds	Rubber Tired Dozers	1	8.00	247	0.40
Sludge Drying Beds	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Storage Pond and Spray Fields	Graders	1	8.00	187	0.41
Storage Pond and Spray Fields	Excavators	1	8.00	158	0.38
Storage Pond and Spray Fields	Rubber Tired Dozers	1	8.00	247	0.40
Storage Pond and Spray Fields	Tractors/Loaders/Backhoes	1	4.00	97	0.37
WWTP Upgrades	Forklifts	1	4.00	89	0.20
WWTP Upgrades	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Lift Station & Pipeline	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Lift Station & Pipeline	Trenchers	1	8.00	78	0.50
Lift Station & Pipeline	Forklifts	1	4.00	89	0.20
Lift Station & Pipeline	Plate Compactors	1	4.00	8	0.43
Sewage Collection System Improvements	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Sewage Collection System Improvements	Trenchers	1	8.00	78	0.50
Sewage Collection System Improvements	Forklifts	1	4.00	89	0.20
Sewage Collection System Improvements	Plate Compactors	1	4.00	8	0.43

Trips and VMT

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

3.6 Sewage Collection System Improvements - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	2.2000e-004	2.0000e-004	1.7600e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004						0.3744
Total	2.2000e-004	2.0000e-004	1.7600e-003	0.0000	4.3000e-004	0.0000	4.3000e-004	1.1000e-004	0.0000	1.2000e-004						0.3744

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

	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
Unmitigated	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	13.00	13.00	13.00	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	0.559162	0.032279	0.198583	0.128083	0.030808	0.007362	0.013004	0.019140	0.002385	0.001267	0.005421	0.000811	0.001695

5.0 Energy Detail

Historical Energy Use: N

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

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	tons/yr										MT/yr						
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000							0.0000
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000							0.0000

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
Total					0.0000

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

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	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
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000							3.0000e-005
Total	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000							3.0000e-005

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	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
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000							3.0000e-005
Total	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000							3.0000e-005

7.0 Water Detail

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				0.0000
Unmitigated				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
Total					0.0000

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

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
Total					0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

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
Total					0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0				0.0000
Total					0.0000

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Annual

10.0 Stationary Equipment

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

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

Oak Shores WWTP Improvements - Construction
San Luis Obispo 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	1.00	1.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.2	Precipitation Freq (Days)	70
Climate Zone	4			Operational Year	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstructionPhase	NumDays	100.00	60.00
tblConstructionPhase	NumDays	2.00	40.00
tblConstructionPhase	NumDays	1.00	40.00
tblGrading	AcresOfGrading	20.00	0.50
tblGrading	MaterialExported	0.00	1,000.00
tblGrading	MaterialImported	0.00	100.00
tblLandUse	LandUseSquareFeet	0.00	1.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	LoadFactor	0.37	0.37
tblOffRoadEquipment	LoadFactor	0.50	0.50
tblOffRoadEquipment	LoadFactor	0.20	0.20
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentType		Excavators
tblOffRoadEquipment	OffRoadEquipmentType		Rubber Tired Dozers
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentType		Tractors/Loaders/Backhoes
tblOffRoadEquipment	OffRoadEquipmentType		Trenchers
tblOffRoadEquipment	OffRoadEquipmentType		Forklifts
tblOffRoadEquipment	OffRoadEquipmentType		Plate Compactors
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Sludge Drying Beds
tblOffRoadEquipment	PhaseName		Storage Pond and Spray Fields
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	8.00	4.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	4.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblOffRoadEquipment	UsageHours	6.00	4.00
tblProjectCharacteristics	PrecipitationFrequency	44	70
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripNumber	0.00	55.00
tblTripsAndVMT	HaulingTripNumber	0.00	120.00

2.0 Emissions Summary

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

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	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Energy	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
Total	4.0000e-005	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						2.3000e-004

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	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Energy	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
Total	4.0000e-005	0.0000	1.0000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						2.3000e-004

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

	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	Sludge Drying Beds	Site Preparation	1/15/2018	3/9/2018	5	40	Sludge Drying Beds
2	Storage Pond and Spray Fields	Grading	3/10/2018	5/4/2018	5	40	Storage Pond and Spray Fields
3	WWTP Upgrades	Building Construction	5/5/2018	7/27/2018	5	60	WWTP Upgrades
4	Lift Station & Pipeline	Trenching	7/28/2018	10/19/2018	5	60	Lift Station & Pipeline
5	Sewage Collection System Improvements	Trenching	10/20/2018	1/11/2019	5	60	Sewage Collection System Improvements

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Sludge Drying Beds	Excavators	1	8.00	158	0.38
Sludge Drying Beds	Graders	1	8.00	187	0.41
Sludge Drying Beds	Rubber Tired Dozers	1	8.00	247	0.40
Sludge Drying Beds	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Storage Pond and Spray Fields	Graders	1	8.00	187	0.41
Storage Pond and Spray Fields	Excavators	1	8.00	158	0.38
Storage Pond and Spray Fields	Rubber Tired Dozers	1	8.00	247	0.40
Storage Pond and Spray Fields	Tractors/Loaders/Backhoes	1	4.00	97	0.37
WWTP Upgrades	Forklifts	1	4.00	89	0.20
WWTP Upgrades	Tractors/Loaders/Backhoes	1	4.00	97	0.37
Lift Station & Pipeline	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Lift Station & Pipeline	Trenchers	1	8.00	78	0.50
Lift Station & Pipeline	Forklifts	1	4.00	89	0.20
Lift Station & Pipeline	Plate Compactors	1	4.00	8	0.43
Sewage Collection System Improvements	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Sewage Collection System Improvements	Trenchers	1	8.00	78	0.50
Sewage Collection System Improvements	Forklifts	1	4.00	89	0.20
Sewage Collection System Improvements	Plate Compactors	1	4.00	8	0.43

Trips and VMT

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

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
Sludge Drying Beds	4	10.00	0.00	55.00	13.00	13.00	20.00	LD_Mix	HDT_Mix	HHDT
Storage Pond and Spray Fields	4	10.00	0.00	0.00	13.00	13.00	20.00	LD_Mix	HDT_Mix	HHDT
WWTP Upgrades	2	0.00	0.00	0.00	13.00	13.00	20.00	LD_Mix	HDT_Mix	HHDT
Lift Station & Pipeline	4	10.00	0.00	120.00	13.00	13.00	20.00	LD_Mix	HDT_Mix	HHDT
Sewage Collection System Improvements	4	10.00	0.00	0.00	13.00	13.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use Soil Stabilizer

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Sludge Drying Beds - 2018

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					6.0404	0.0000	6.0404	3.3124	0.0000	3.3124						0.0000
Off-Road	2.1080	24.0982	10.7352	0.0219		1.0856	1.0856		0.9987	0.9987						2,223.2513
Total	2.1080	24.0982	10.7352	0.0219	6.0404	1.0856	7.1260	3.3124	0.9987	4.3112						2,223.2513

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

3.2 Sludge Drying Beds - 2018

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	0.0165	0.5078	0.1203	1.1000e-003	0.0240	3.7800e-003	0.0278	6.5700e-003	3.6100e-003	0.0102						117.8748
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0594	0.0525	0.4495	9.4000e-004	0.0989	6.8000e-004	0.0995	0.0262	6.2000e-004	0.0268						93.7263
Total	0.0760	0.5604	0.5698	2.0400e-003	0.1228	4.4600e-003	0.1273	0.0328	4.2300e-003	0.0370						211.6011

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					2.3558	0.0000	2.3558	1.2919	0.0000	1.2919						0.0000
Off-Road	0.5364	10.5038	13.1354	0.0219		0.4517	0.4517		0.4517	0.4517						2,223.2513
Total	0.5364	10.5038	13.1354	0.0219	2.3558	0.4517	2.8075	1.2919	0.4517	1.7436						2,223.2513

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

3.2 Sludge Drying Beds - 2018

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	0.0165	0.5078	0.1203	1.1000e-003	0.0240	3.7800e-003	0.0278	6.5700e-003	3.6100e-003	0.0102						117.8748
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0594	0.0525	0.4495	9.4000e-004	0.0989	6.8000e-004	0.0995	0.0262	6.2000e-004	0.0268						93.7263
Total	0.0760	0.5604	0.5698	2.0400e-003	0.1228	4.4600e-003	0.1273	0.0328	4.2300e-003	0.0370						211.6011

3.3 Storage Pond and Spray Fields - 2018

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					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675						0.0000
Off-Road	2.1080	24.0982	10.7352	0.0219		1.0856	1.0856		0.9987	0.9987						2,223.2513
Total	2.1080	24.0982	10.7352	0.0219	6.5523	1.0856	7.6379	3.3675	0.9987	4.3662						2,223.2513

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

3.3 Storage Pond and Spray Fields - 2018

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0594	0.0525	0.4495	9.4000e-004	0.0989	6.8000e-004	0.0995	0.0262	6.2000e-004	0.0268						93.7263
Total	0.0594	0.0525	0.4495	9.4000e-004	0.0989	6.8000e-004	0.0995	0.0262	6.2000e-004	0.0268						93.7263

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					2.5554	0.0000	2.5554	1.3133	0.0000	1.3133						0.0000
Off-Road	0.5364	10.5038	13.1354	0.0219		0.4517	0.4517		0.4517	0.4517						2,223.2513
Total	0.5364	10.5038	13.1354	0.0219	2.5554	0.4517	3.0071	1.3133	0.4517	1.7650						2,223.2513

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

3.6 Sewage Collection System Improvements - 2019

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
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0534	0.0460	0.3931	9.1000e-004	0.0989	6.5000e-004	0.0995	0.0262	6.0000e-004	0.0268						90.9608
Total	0.0534	0.0460	0.3931	9.1000e-004	0.0989	6.5000e-004	0.0995	0.0262	6.0000e-004	0.0268						90.9608

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

	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
Unmitigated	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	13.00	13.00	13.00	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	0.559162	0.032279	0.198583	0.128083	0.030808	0.007362	0.013004	0.019140	0.002385	0.001267	0.005421	0.000811	0.001695

5.0 Energy Detail

Historical Energy Use: N

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

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
Total		0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000

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	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Unmitigated	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

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	1.0000e-005					0.0000	0.0000		0.0000	0.0000							0.0000
Consumer Products	2.0000e-005					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							2.3000e-004
Total	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000							2.3000e-004

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	1.0000e-005					0.0000	0.0000		0.0000	0.0000							0.0000
Consumer Products	2.0000e-005					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							2.3000e-004
Total	4.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000							2.3000e-004

7.0 Water Detail

Oak Shores WWTP Improvements - Construction - San Luis Obispo County, Winter

7.1 Mitigation Measures Water**8.0 Waste Detail****8.1 Mitigation Measures Waste****9.0 Operational Offroad**

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
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10.0 Stationary Equipment**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

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

Oak Shores WWTP Improvements - Operational Emissions
San Luis Obispo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.02	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.2	Precipitation Freq (Days)	44
Climate Zone	4			Operational Year	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

Project Characteristics - Operational emissions only.

Land Use - .

Construction Phase - Operational truck and worker commute trips calculated using the construction module.

Off-road Equipment - .

Grading -

Trips and VMT - 2 additional worker trips daily. 76 haul truck trips annually.

Energy Use - 308,364 kWhr/yr

Vehicle Trips - .

Consumer Products - .

Area Coating - .

Water And Wastewater - .

Solid Waste - .

Operational Off-Road Equipment - Assumes 1 50hp FE loader, 2 days/month, 8 hrs/day.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	1.00	365.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	1/29/2018	12/31/2018
tblConstructionPhase	PhaseStartDate	1/27/2018	1/1/2018
tblEnergyUse	LightingElect	3.08	0.00
tblEnergyUse	NT24E	3.70	308.36
tblEnergyUse	NT24NG	6.67	0.00
tblEnergyUse	T24E	1.48	0.00
tblEnergyUse	T24NG	19.71	0.00
tblGrading	AcresOfGrading	0.00	0.50

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	24.00
tblOperationalOffRoadEquipment	OperHorsePower	97.00	50.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	1.24	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	76.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	13.00	0.00
tblVehicleTrips	CNW_TL	13.00	0.00
tblVehicleTrips	CW_TL	13.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	231,250.00	0.00

2.0 Emissions Summary

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

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	3.9100e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						3.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						90.0581
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Offroad	3.6000e-003	0.0181	0.0204	2.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003						1.8892
Waste						0.0000	0.0000		0.0000	0.0000						0.0000
Water						0.0000	0.0000		0.0000	0.0000						0.0000
Total	7.5100e-003	0.0181	0.0204	2.0000e-005	0.0000	1.2900e-003	1.2900e-003	0.0000	1.1900e-003	1.1900e-003						91.9473

	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	Operational Vehicle Trips (Not Const.)	Site Preparation	1/1/2018	12/31/2018	7	365	Operational Vehicle Trips (Not Const.)

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Operational Vehicle Trips (Not Const.)	Graders	0	8.00	187	0.41
Operational Vehicle Trips (Not Const.)	Tractors/Loaders/Backhoes	0	8.00	97	0.37

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
Operational Vehicle Trips (Not Const.)	0	2.00	0.00	76.00	13.00	13.00	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

3.2 Operational Vehicle Trips (Not Const.) - 2018

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					2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005						0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000						0.0000
Total	0.0000	0.0000	0.0000	0.0000	2.7000e-004	0.0000	2.7000e-004	3.0000e-005	0.0000	3.0000e-005						0.0000

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	4.5000e-004	0.0142	3.2100e-003	3.0000e-005	6.5000e-004	1.0000e-004	7.5000e-004	1.8000e-004	1.0000e-004	2.8000e-004						2.9788
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	1.9500e-003	1.8800e-003	0.0163	3.0000e-005	3.5100e-003	2.0000e-005	3.5400e-003	9.3000e-004	2.0000e-005	9.6000e-004						3.1287
Total	2.4000e-003	0.0161	0.0195	6.0000e-005	4.1600e-003	1.2000e-004	4.2900e-003	1.1100e-003	1.2000e-004	1.2400e-003						6.1075

4.0 Operational Detail - Mobile

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

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
Unmitigated	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
General Light Industry	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
General Light Industry	0.00	0.00	0.00	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549382	0.034064	0.198767	0.132360	0.033447	0.007872	0.013134	0.018943	0.002404	0.001320	0.005630	0.000825	0.001852

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

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						90.0581
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000						90.0581
NaturalGas Mitigated	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

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	308364				90.0581
Total					90.0581

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
General Light Industry	308364				90.0581
Total					90.0581

6.0 Area Detail

6.1 Mitigation Measures Area

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

	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	3.9100e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						3.0000e-005
Unmitigated	3.9100e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						3.0000e-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	0.0000					0.0000	0.0000		0.0000	0.0000						0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000						0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						3.0000e-005
Total	3.9100e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000						3.0000e-005

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

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	0.0000					0.0000	0.0000		0.0000	0.0000							0.0000
Consumer Products	3.9100e-003					0.0000	0.0000		0.0000	0.0000							0.0000
Landscaping	0.0000	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000							3.0000e-005
Total	3.9100e-003	0.0000	2.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000							3.0000e-005

7.0 Water Detail

7.1 Mitigation Measures Water

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0				0.0000
Total					0.0000

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
General Light Industry	0 / 0				0.0000
Total					0.0000

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated				0.0000
Unmitigated				0.0000

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0				0.0000
Total					0.0000

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
General Light Industry	0				0.0000
Total					0.0000

9.0 Operational Offroad

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Annual

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	1	8.00	24	50	0.37	Diesel

UnMitigated/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	
Equipment Type	tons/yr										MT/yr						
Tractors/Loaders/Backhoes	3.6000e-003	0.0181	0.0204	2.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003							1.8892
Total	3.6000e-003	0.0181	0.0204	2.0000e-005		1.2900e-003	1.2900e-003		1.1900e-003	1.1900e-003							1.8892

10.0 Stationary Equipment

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
----------------	--------	----------------	-----------------	---------------	-----------

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

Oak Shores WWTP Improvements - Operational Emissions
San Luis Obispo County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.02	1,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	Wind Speed (m/s)	3.2	Precipitation Freq (Days)	44
Climate Zone	4			Operational Year	2019
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

Project Characteristics - Operational emissions only.

Land Use - .

Construction Phase - Operational truck and worker commute trips calculated using the construction module.

Off-road Equipment - .

Grading -

Trips and VMT - 2 additional worker trips daily. 76 haul truck trips annually.

Energy Use - 308,364 kWhr/yr

Vehicle Trips - .

Consumer Products - .

Area Coating - .

Water And Wastewater - .

Solid Waste - .

Operational Off-Road Equipment - Assumes 1 50hp FE loader, 2 days/month, 8 hrs/day.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblAreaCoating	ReapplicationRatePercent	10	0
tblConstructionPhase	NumDays	1.00	365.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	PhaseEndDate	1/29/2018	12/31/2018
tblConstructionPhase	PhaseStartDate	1/27/2018	1/1/2018
tblEnergyUse	LightingElect	3.08	0.00
tblEnergyUse	NT24E	3.70	308.36
tblEnergyUse	NT24NG	6.67	0.00
tblEnergyUse	T24E	1.48	0.00
tblEnergyUse	T24NG	19.71	0.00
tblGrading	AcresOfGrading	0.00	0.50

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	24.00
tblOperationalOffRoadEquipment	OperHorsePower	97.00	50.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	1.24	0.00
tblTripsAndVMT	HaulingTripNumber	0.00	76.00
tblTripsAndVMT	WorkerTripNumber	0.00	2.00
tblVehicleTrips	CC_TL	13.00	0.00
tblVehicleTrips	CNW_TL	13.00	0.00
tblVehicleTrips	CW_TL	13.00	0.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	231,250.00	0.00

2.0 Emissions Summary

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

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	lb/day										lb/day					
Area	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000						2.3000e-004
Energy	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
Offroad	0.3002	1.5039	1.6977	1.7300e-003		0.1077	0.1077		0.0991	0.0991						173.5369
Total	0.3217	1.5039	1.6978	1.7300e-003	0.0000	0.1077	0.1077	0.0000	0.0991	0.0991						173.5371

	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	Operational Vehicle Trips (Not Const.)	Site Preparation	1/1/2018	12/31/2018	7	365	Operational Vehicle Trips (Not Const.)

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

3.2 Operational Vehicle Trips (Not Const.) - 2018

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	2.5000e-003	0.0769	0.0182	1.7000e-004	3.6300e-003	5.7000e-004	4.2000e-003	9.9000e-004	5.5000e-004	1.5400e-003						17.8500
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000						0.0000
Worker	0.0119	0.0105	0.0899	1.9000e-004	0.0198	1.4000e-004	0.0199	5.2400e-003	1.2000e-004	5.3700e-003						18.7453
Total	0.0144	0.0874	0.1081	3.6000e-004	0.0234	7.1000e-004	0.0241	6.2300e-003	6.7000e-004	6.9100e-003						36.5953

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

	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
Unmitigated	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
General Light Industry	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
General Light Industry	0.00	0.00	0.00	59.00	28.00	13.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
General Light Industry	0.549382	0.034064	0.198767	0.132360	0.033447	0.007872	0.013134	0.018943	0.002404	0.001320	0.005630	0.000825	0.001852

5.0 Energy Detail

Historical Energy Use: N

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

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	0.0000					0.0000	0.0000		0.0000	0.0000							0.0000
Consumer Products	0.0214					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							2.3000e-004
Total	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000							2.3000e-004

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	0.0000					0.0000	0.0000		0.0000	0.0000							0.0000
Consumer Products	0.0214					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							2.3000e-004
Total	0.0214	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000							2.3000e-004

7.0 Water Detail

Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Tractors/Loaders/Backhoes	1	8.00	24	50	0.37	Diesel

UnMitigated/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
Equipment Type	lb/day										lb/day					
Tractors/Loaders/Backhoes	0.3002	1.5039	1.6977	1.7300e-003		0.1077	0.1077		0.0991	0.0991						173.5369
Total	0.3002	1.5039	1.6977	1.7300e-003		0.1077	0.1077		0.0991	0.0991						173.5369

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
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Oak Shores WWTP Improvements - Operational Emissions - San Luis Obispo County, Winter

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

OPERATIONAL MODELING ASSUMPTIONS

from engineer

Buildout average flow:	0.61 MGD	
Existing electricity use:	158,018	kWh/yr
New Employee Trips:	2	DAILY
Number of individuals served:	10,166	
Project Electricity Use:	185,226 kw-hr/year for Phase 1	
	308,364 kw-hr/year for Phase 2	
Solids Generation:	284,396 gal/year	
Number of haul truck trips for dried sludge transport to landfill/composting facility:	5/year	
Annual haul truck trips required for sludge transport to drying beds:	71 truck trips/year	
Installation of any new stationary sources of emissions:	None	
New off-road equipment:	Front-end loader, 50 hp, diesel powered, 10-15 hours/month	
New processes to be installed:	Headworks (1)	
	Sludge Drying Beds	
	Percolation Basins	

APPENDIX C

Biological Resources Background Information

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

San Luis Obispo County, California



Local office

Ventura Fish And Wildlife Office

☎ (805) 644-1766

📠 (805) 644-3958

2493 Portola Road, Suite B
Ventura, CA 93003-7726

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population, even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species¹ and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries²).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information.
2. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME

STATUS

Giant Kangaroo Rat *Dipodomys ingens* Endangered
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/6051>

San Joaquin Kit Fox *Vulpes macrotis mutica* Endangered
 No critical habitat has been designated for this species.
<https://ecos.fws.gov/ecp/species/2873>

Birds

NAME	STATUS
California Clapper Rail <i>Rallus longirostris obsoletus</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/4240	Endangered
California Condor <i>Gymnogyps californianus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered
Least Bell's Vireo <i>Vireo bellii pusillus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/6749	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard <i>Gambelia silus</i> No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/625	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog <i>Rana draytonii</i> There is final critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/2891	Threatened

California Tiger Salamander <i>Ambystoma californiense</i>	Threatened
There is final critical habitat for this species. Your location is outside the critical habitat.	
https://ecos.fws.gov/ecp/species/2076	

Insects

NAME	STATUS
Kern Primrose Sphinx Moth <i>Euproserpinus euterpe</i>	Threatened
There is proposed critical habitat for this species. The location of the critical habitat is not available.	
https://ecos.fws.gov/ecp/species/7881	

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp <i>Branchinecta lynchi</i>	Threatened
There is final critical habitat for this species. Your location is outside the critical habitat.	
https://ecos.fws.gov/ecp/species/498	

Flowering Plants

NAME	STATUS
California Jewelflower <i>Caulanthus californicus</i>	Endangered
No critical habitat has been designated for this species.	
https://ecos.fws.gov/ecp/species/4599	
Marsh Sandwort <i>Arenaria paludicola</i>	Endangered
No critical habitat has been designated for this species.	
https://ecos.fws.gov/ecp/species/2229	
Purple Amole <i>Chlorogalum purpureum</i>	Threatened
There is final critical habitat for this species. Your location is outside the critical habitat.	
https://ecos.fws.gov/ecp/species/5531	
Spreading Navarretia <i>Navarretia fossalis</i>	Threatened
There is final critical habitat for this species. Your location is outside the critical habitat.	
https://ecos.fws.gov/ecp/species/1334	

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

THERE ARE NO CRITICAL HABITATS AT THIS LOCATION.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

1. The [Migratory Birds Treaty Act](#) of 1918.
2. The [Bald and Golden Eagle Protection Act](#) of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern <http://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>
- Measures for avoiding and minimizing impacts to birds <http://www.fws.gov/birds/management/project-assessment-tools-and-guidance/conservation-measures.php>
- Nationwide conservation measures for birds <http://www.fws.gov/migratorybirds/pdf/management/nationwidestandardconservationmeasures.pdf>

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern](#) (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME

BREEDING SEASON (IF A
BREEDING SEASON IS INDICATED
FOR A BIRD ON YOUR LIST, THE

BIRD MAY BREED IN YOUR PROJECT AREA SOMETIME WITHIN THE TIMEFRAME SPECIFIED, WHICH IS A VERY LIBERAL ESTIMATE OF THE DATES INSIDE WHICH THE BIRD BREEDS ACROSS ITS ENTIRE RANGE. "BREEDS ELSEWHERE" INDICATES THAT THE BIRD DOES NOT LIKELY BREED IN YOUR PROJECT AREA.)

Bald Eagle *Haliaeetus leucocephalus*

This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.

Breeds Jan 1 to Aug 31

Clark's Grebe *Aechmophorus clarkii*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

Breeds Jan 1 to Dec 31

Nuttall's Woodpecker *Picoides nuttallii*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/9410>

Breeds Apr 1 to Jul 20

Oak Titmouse *Baeolophus inornatus*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9656>

Breeds Mar 15 to Jul 15

Spotted Towhee *Pipilo maculatus clementae*

This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA

<https://ecos.fws.gov/ecp/species/4243>

Breeds Apr 15 to Jul 20

Yellow-billed Magpie *Pica nuttalli*

This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.

<https://ecos.fws.gov/ecp/species/9726>

Breeds Apr 1 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

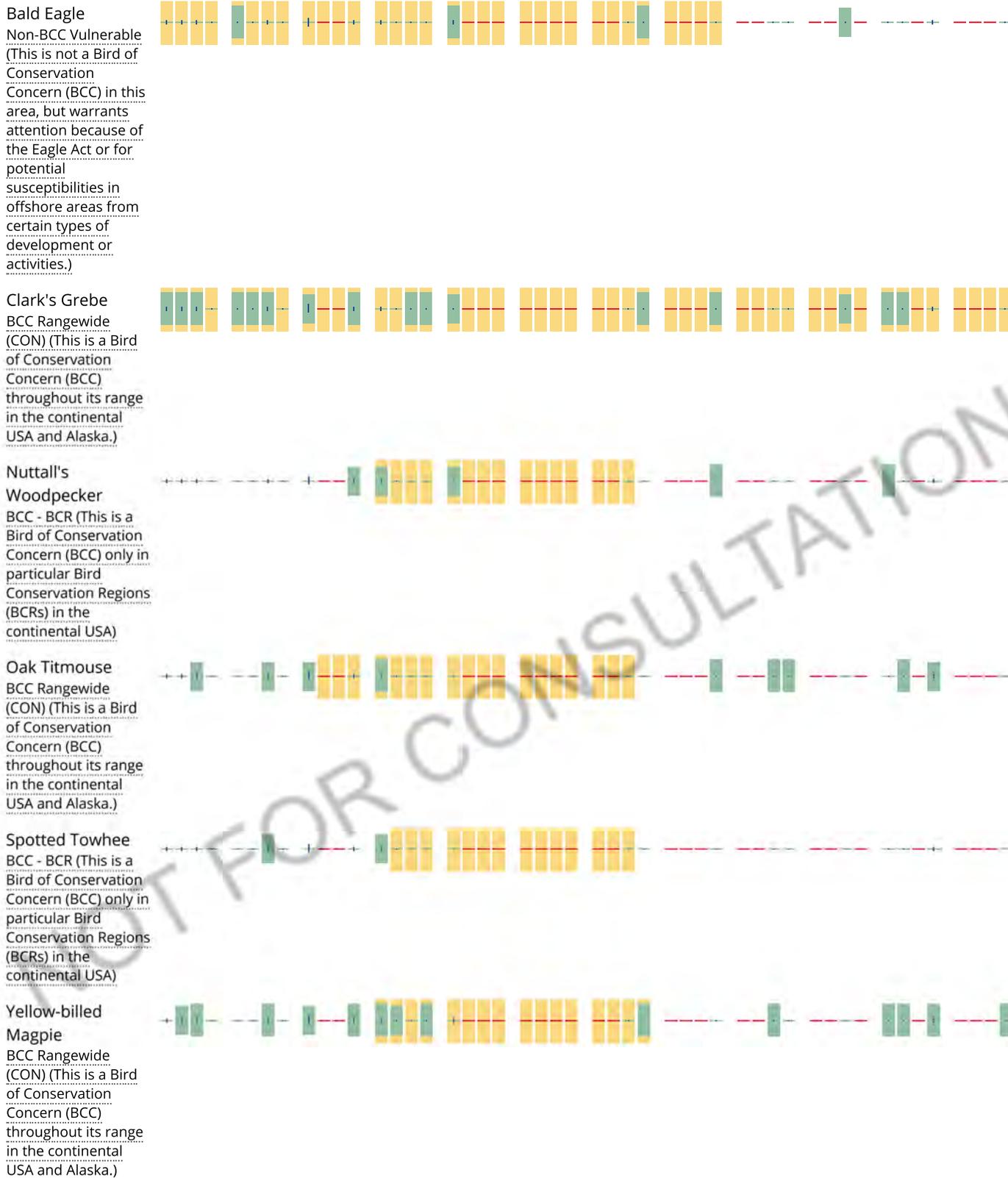
No Data (—)

A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to

occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [E-bird Explore Data Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER EMERGENT WETLAND

[PEMCh](#)

FRESHWATER POND

[PUBFh](#)

RIVERINE

[R4SBJ](#)

[R4SBA](#)

A full description for each wetland code can be found at the [National Wetlands Inventory website](#)

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged

aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

NOT FOR CONSULTATION



Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad IS (Tierra Redonda Mountain (3512078) OR Williams Hill (3512181) OR Hames Valley (3512088) OR Wunpost (3512087) OR Bryson (3512171) OR Bradley (3512077) OR Adelaida (3512067) OR Lime Mountain (3512068) OR Pebblestone Shut-in (3512161))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Abies bracteata</i> bristlecone fir	PGPIN01030	None	None	G2G3	S2S3	1B.3
<i>Agelaius tricolor</i> tricolored blackbird	ABPBXB0020	None	Candidate Endangered	G2G3	S1S2	SSC
<i>Agrostis hooveri</i> Hoover's bent grass	PMPOA040M0	None	None	G2	S2	1B.2
<i>Ambystoma californiense</i> California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
<i>Anniella pulchra</i> northern California legless lizard	ARACC01020	None	None	G3	S3	SSC
<i>Antrozous pallidus</i> pallid bat	AMACC10010	None	None	G5	S3	SSC
<i>Aquila chrysaetos</i> golden eagle	ABNKC22010	None	None	G5	S3	FP
<i>Arctostaphylos luciana</i> Santa Lucia manzanita	PDERI040N0	None	None	G2	S2	1B.2
<i>Ardea herodias</i> great blue heron	ABNGA04010	None	None	G5	S4	
<i>Aristocapsa insignis</i> Indian Valley spineflower	PDPGN0U010	None	None	G1	S1	1B.2
<i>Athene cunicularia</i> burrowing owl	ABNSB10010	None	None	G4	S3	SSC
<i>Baccharis plummerae ssp. glabrata</i> San Simeon baccharis	PDAST0W0D1	None	None	G3T1	S1	1B.2
<i>Branchinecta lynchi</i> vernal pool fairy shrimp	ICBRA03030	Threatened	None	G3	S3	
<i>Buteo regalis</i> ferruginous hawk	ABNKC19120	None	None	G4	S3S4	WL
<i>Calochortus fimbriatus</i> late-flowered mariposa-lily	PMLIL0D1J2	None	None	G3	S3	1B.3
<i>Calochortus obispoensis</i> San Luis mariposa-lily	PMLIL0D110	None	None	G2	S2	1B.2
<i>Calochortus simulans</i> La Panza mariposa-lily	PMLIL0D170	None	None	G2	S2	1B.3
<i>Calycadenia villosa</i> dwarf calycadenia	PDAST1P0B0	None	None	G3	S3	1B.1



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Camissoniopsis hardhamiae</i> Hardham's evening-primrose	PDONA030N0	None	None	G2	S2	1B.2
<i>Carex obispoensis</i> San Luis Obispo sedge	PMCYP039J0	None	None	G3?	S3?	1B.2
<i>Castilleja densiflora var. obispoensis</i> San Luis Obispo owl's-clover	PDSCR0D453	None	None	G5T2	S2	1B.2
<i>Caulanthus lemmonii</i> Lemmon's jewelflower	PDBRA0M0E0	None	None	G3	S3	1B.2
<i>Chlorogalum purpureum var. purpureum</i> Santa Lucia purple amole	PMLIL0G051	Threatened	None	G2T2	S2	1B.1
<i>Chorizanthe rectispina</i> straight-awned spineflower	PDPGN040N0	None	None	G2	S2	1B.3
<i>Circus cyaneus</i> northern harrier	ABNKC11010	None	None	G5	S3	SSC
<i>Cirsium fontinale var. obispoense</i> San Luis Obispo fountain thistle	PDAST2E162	Endangered	Endangered	G2T2	S2	1B.2
<i>Clarkia jolonensis</i> Jolon clarkia	PDONA050L0	None	None	G2	S2	1B.2
<i>Collinsia antonina</i> San Antonio collinsia	PDSCR0H010	None	None	G2	S2	1B.2
<i>Collinsia multicolor</i> San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
<i>Delphinium umbraculorum</i> umbrella larkspur	PDRAN0B1W0	None	None	G3	S3	1B.3
<i>Emys marmorata</i> western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
<i>Entosthodon kochii</i> Koch's cord moss	NBMUS2P050	None	None	G1	S1	1B.3
<i>Eremophila alpestris actia</i> California horned lark	ABPAT02011	None	None	G5T4Q	S4	WL
<i>Eriastrum luteum</i> yellow-flowered eriastrum	PDPLM03080	None	None	G2	S2	1B.2
<i>Erythranthe hardhamiae</i> Santa Lucia monkeyflower	PDPHR01030	None	None	G1	S1	1B.1
<i>Falco mexicanus</i> prairie falcon	ABNKD06090	None	None	G5	S4	WL
<i>Fritillaria ojaiensis</i> Ojai fritillary	PMLIL0V0N0	None	None	G2?	S2?	1B.2
<i>Galium hardhamiae</i> Hardham's bedstraw	PDRUB0N0Y0	None	None	G3	S3	1B.3



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Haliaeetus leucocephalus</i> bald eagle	ABNKC10010	Delisted	Endangered	G5	S3	FP
<i>Juncus luciensis</i> Santa Lucia dwarf rush	PMJUN013J0	None	None	G3	S3	1B.2
<i>Lasiurus cinereus</i> hoary bat	AMACC05030	None	None	G5	S4	
<i>Layia heterotricha</i> pale-yellow layia	PDAST5N070	None	None	G2	S2	1B.1
<i>Malacothamnus abbottii</i> Abbott's bush-mallow	PDMAL0Q010	None	None	G1	S1	1B.1
<i>Malacothamnus davidsonii</i> Davidson's bush-mallow	PDMAL0Q040	None	None	G2	S2	1B.2
<i>Malacothamnus palmeri var. involucratus</i> Carmel Valley bush-mallow	PDMAL0Q0B1	None	None	G3T2Q	S2	1B.2
<i>Malacothamnus palmeri var. palmeri</i> Santa Lucia bush-mallow	PDMAL0Q0B5	None	None	G3T2Q	S2	1B.2
<i>Malacothrix saxatilis var. arachnoidea</i> Carmel Valley malacothrix	PDAST660C2	None	None	G5T2	S2	1B.2
<i>Masticophis flagellum ruddocki</i> San Joaquin coachwhip	ARADB21021	None	None	G5T2T3	S2?	SSC
<i>Monardella palmeri</i> Palmer's monardella	PDLAM180H0	None	None	G2	S2	1B.2
<i>Monolopia gracilens</i> woodland woollythreads	PDAST6G010	None	None	G3	S3	1B.2
<i>Navarretia nigelliformis ssp. radians</i> shining navarretia	PDPLM0C0J2	None	None	G4T2	S2	1B.2
<i>Navarretia prostrata</i> prostrate vernal pool navarretia	PDPLM0C0Q0	None	None	G2	S2	1B.1
<i>Nemacladus secundiflorus var. robbinsii</i> Robbins' nemacladus	PDCAM0F0B2	None	None	G3T2	S2	1B.2
<i>Neotoma macrotis luciana</i> Monterey dusky-footed woodrat	AMAFF08083	None	None	G5T3	S3	SSC
<i>Oncorhynchus mykiss irideus pop. 9</i> steelhead - south-central California coast DPS	AFCHA0209H	Threatened	None	G5T2Q	S2	
<i>Perognathus inornatus psammophilus</i> Salinas pocket mouse	AMAFD01062	None	None	G4T2?	S1	SSC
<i>Phrynosoma blainvillii</i> coast horned lizard	ARACF12100	None	None	G3G4	S3S4	SSC
<i>Plagiobothrys uncinatus</i> hooked popcornflower	PDBOR0V170	None	None	G2	S2	1B.2
<i>Rana draytonii</i> California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC



Selected Elements by Scientific Name
California Department of Fish and Wildlife
California Natural Diversity Database



Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
<i>Setophaga petechia</i> yellow warbler	ABPBX03010	None	None	G5	S3S4	SSC
<i>Spea hammondi</i> western spadefoot	AAABF02020	None	None	G3	S3	SSC
<i>Streptanthus albidus ssp. peramoenus</i> most beautiful jewelflower	PDBRA2G012	None	None	G2T2	S2	1B.2
<i>Stylocline masonii</i> Mason's neststraw	PDAST8Y080	None	None	G1	S1	1B.1
<i>Sycamore Alluvial Woodland</i> Sycamore Alluvial Woodland	CTT62100CA	None	None	G1	S1.1	
<i>Taxidea taxus</i> American badger	AMAJF04010	None	None	G5	S3	SSC
<i>Thamnophis hammondi</i> two-striped gartersnake	ARADB36160	None	None	G4	S3S4	SSC
<i>Triteleia ixioides ssp. cookii</i> Cook's triteleia	PMLIL210A2	None	None	G5T2T3	S2S3	1B.3
<i>Valley Oak Woodland</i> Valley Oak Woodland	CTT71130CA	None	None	G3	S2.1	
<i>Vireo bellii pusillus</i> least Bell's vireo	ABPBW01114	Endangered	Endangered	G5T2	S2	
<i>Vulpes macrotis mutica</i> San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2	S2	

Record Count: 71

CNPS *California Native Plant Soc* Rare and Endangered Plant Inventory

Plant List

65 matches found. [Click on scientific name for details](#)

Search Criteria

Found in 9 Quads around 35120G8

Scientific Name	Common Name	Family	Lifeform	Rare Plant Rank	State Rank	Global Rank
Abies bracteata	bristlecone fir	Pinaceae	perennial evergreen tree	1B.3	S2	G2
Amsinckia douglasiana	Douglas' fiddleneck	Boraginaceae	annual herb	4.2	S3	G3
Arctostaphylos hooveri	Hoover's manzanita	Ericaceae	perennial evergreen shrub	4.3	S3	G3
Arctostaphylos obispoensis	Bishop manzanita	Ericaceae	perennial evergreen shrub	4.3	S4	G4
Aspidotis carlotta-halliae	Carlotta Hall's lace fern	Pteridaceae	perennial rhizomatous herb	4.2	S3	G3
Astragalus macrodon	Salinas milk-vetch	Fabaceae	perennial herb	4.3	S4	G4
Baccharis plummerae ssp. glabrata	San Simeon baccharis	Asteraceae	perennial deciduous shrub	1B.2	S2	G3T2
California macrophylla	round-leaved filaree	Geraniaceae	annual herb	1B.2	S3?	G3?
Calochortus clavatus var. clavatus	club-haired mariposa lily	Liliaceae	perennial bulbiferous herb	4.3	S3	G4T3
Calochortus fimbriatus	late-flowered mariposa lily	Liliaceae	perennial bulbiferous herb	1B.3	S3	G3
Calochortus obispoensis	San Luis mariposa lily	Liliaceae	perennial bulbiferous herb	1B.2	S2	G2
Calochortus simulans	La Panza mariposa lily	Liliaceae	perennial bulbiferous herb	1B.3	S2	G2
Calycadenia villosa	dwarf calycadenia	Asteraceae	annual herb	1B.1	S3	G3
Calyptridium parryi var. hesseae	Santa Cruz Mountains pussypaws	Montiaceae	annual herb	1B.1	S2	G3G4T2
Camissoniopsis hardhamiae	Hardham's evening-primrose	Onagraceae	annual herb	1B.2	S2	G2
Carex obispoensis	San Luis Obispo sedge	Cyperaceae	perennial rhizomatous herb	1B.2	S2S3	G2G3
Castilleja densiflora var. obispoensis	San Luis Obispo owl's-clover	Orobanchaceae	annual herb (hemiparasitic)	1B.2	S2	G5T2
Caulanthus lemmonii	Lemmon's jewelflower	Brassicaceae	annual herb	1B.2	S3	G3
Chlorogalum purpureum var. purpureum	Santa Lucia purple amole	Agavaceae	perennial bulbiferous herb	1B.1	S2	G2T2
Chorizanthe douglasii	Douglas' spineflower	Polygonaceae	annual herb	4.3	S4	G4

<u>Chorizanthe palmeri</u>	Palmer's spineflower	Polygonaceae	annual herb	4.2	S4	G4?
<u>Chorizanthe rectispina</u>	straight-awned spineflower	Polygonaceae	annual herb	1B.3	S1	G1
<u>Cirsium fontinale var. obispoense</u>	San Luis Obispo fountain thistle	Asteraceae	perennial herb	1B.2	S2	G2T2
<u>Clarkia jolonensis</u>	Jolon clarkia	Onagraceae	annual herb	1B.2	S2	G2
<u>Clarkia lewisii</u>	Lewis' clarkia	Onagraceae	annual herb	4.3	S4	G4
<u>Clinopodium mimuloides</u>	monkey-flower savory	Lamiaceae	perennial herb	4.2	S3	G3
<u>Collinsia antonina</u>	San Antonio collinsia	Plantaginaceae	annual herb	1B.2	S2	G2
<u>Cryptantha rattanii</u>	Rattan's cryptantha	Boraginaceae	annual herb	4.3	S4	G4
<u>Delphinium gypsophilum ssp. parviflorum</u>	small-flowered gypsum-loving larkspur	Ranunculaceae	perennial herb	3.2	S3?	G4T3?Q
<u>Delphinium parryi ssp. blochmaniae</u>	dune larkspur	Ranunculaceae	perennial herb	1B.2	S2	G4T2
<u>Delphinium umbracolorum</u>	umbrella larkspur	Ranunculaceae	perennial herb	1B.3	S3	G3
<u>Entosthodon kochii</u>	Koch's cord moss	Funariaceae	moss	1B.3	S2	G2
<u>Eriastrum luteum</u>	yellow-flowered eriastrum	Polemoniaceae	annual herb	1B.2	S2	G2
<u>Eriogonum elegans</u>	elegant wild buckwheat	Polygonaceae	annual herb	4.3	S3S4	G3G4
<u>Eriophyllum jepsonii</u>	Jepson's woolly sunflower	Asteraceae	perennial herb	4.3	S3	G3
<u>Erythranthe hardhamiae</u>	Santa Lucia monkeyflower	Phrymaceae	annual herb	1B.1	S1	G1
<u>Eschscholzia hypocoides</u>	San Benito poppy	Papaveraceae	annual herb	4.3	S4	G4
<u>Fritillaria ojaiensis</u>	Ojai fritillary	Liliaceae	perennial bulbiferous herb	1B.2	S2?	G2?
<u>Galium hardhamiae</u>	Hardham's bedstraw	Rubiaceae	perennial herb	1B.3	S3	G3
<u>Hesperervax caulescens</u>	hogwallow starfish	Asteraceae	annual herb	4.2	S3	G3
<u>Juncus luciensis</u>	Santa Lucia dwarf rush	Juncaceae	annual herb	1B.2	S3	G3
<u>Layia heterotricha</u>	pale-yellow layia	Asteraceae	annual herb	1B.1	S2	G2
<u>Lomatium parvifolium</u>	small-leaved lomatium	Apiaceae	perennial herb	4.2	S4	G4
<u>Lupinus ludovicianus</u>	San Luis Obispo County lupine	Fabaceae	perennial herb	1B.2	S1	G1
<u>Malacothamnus abbottii</u>	Abbott's bush-mallow	Malvaceae	perennial deciduous shrub	1B.1	S1	G1
<u>Malacothamnus aboriginum</u>	Indian Valley bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S3	G3
<u>Malacothamnus davidsonii</u>	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G2
<u>Malacothamnus jonesii</u>	Jones' bush-mallow	Malvaceae	perennial deciduous shrub	4.3	S4	G4
<u>Malacothamnus palmeri var. involucratus</u>	Carmel Valley bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S3	G3T3Q
<u>Malacothamnus palmeri var. palmeri</u>	Santa Lucia bush-mallow	Malvaceae	perennial deciduous shrub	1B.2	S2	G3T2Q
<u>Malacothrix saxatilis var. arachnoidea</u>	Carmel Valley malacothrix	Asteraceae	perennial rhizomatous herb	1B.2	S2	G5T2
<u>Microseris paludosa</u>	marsh microseris	Asteraceae	perennial herb	1B.2	S2	G2
<u>Monardella antonina ssp.</u>	San Antonio Hills	Lamiaceae	perennial	3	S1S3	G4T1T3Q

antonina	monardella		rhizomatous herb			
Monolopia gracilens	woodland woollythreads	Asteraceae	annual herb	1B.2	S3	G3
Navarretia nigelliformis ssp. radians	shining navarretia	Polemoniaceae	annual herb	1B.2	S2	G4T2
Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	annual herb	1B.1	S2	G2
Nemacladus secundiflorus var. robbinsii	Robbins' nemacladus	Campanulaceae	annual herb	1B.2	S2	G3T2
Nemacladus secundiflorus var. secundiflorus	large-flowered nemacladus	Campanulaceae	annual herb	4.3	S3?	G3T3?
Plagiobothrys uncinatus	hooked popcornflower	Boraginaceae	annual herb	1B.2	S2	G2
Sanicula hoffmannii	Hoffmann's sanicle	Apiaceae	perennial herb	4.3	S3	G3
Senecio astephanus	San Gabriel ragwort	Asteraceae	perennial herb	4.3	S3	G3
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	Brassicaceae	annual herb	1B.2	S2	G2T2
Stylocline masonii	Mason's neststraw	Asteraceae	annual herb	1B.1	S1	G1
Systenotheca vortriedei	Vortriede's spineflower	Polygonaceae	annual herb	4.3	S3	G3
Triteleia ixioides ssp. cookii	Cook's triteleia	Themidaceae	perennial bulbiferous herb	1B.3	S2S3	G5T2T3

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Table C-1. Special-Status Plant Species Evaluated for Potential Occurrence (Elevation: 1,030 to 1,400 feet above sea level)

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
bristlecone fir <i>Abies bracteata</i>	Gymnosperm typically found in rocky sites in broadleaved upland forest, chaparral, lower montane coniferous forest, and riparian woodland habitat types. Elevation range: 183–1600 meters.	N/A	--/--/1B.3	Suitable Conditions Present; Species Absent: Suitable chaparral and forest habitats are present within the project site at the appropriate elevation range; however, this species was not observed within the project site and is not expected to occur.
Hoover's bent grass <i>Agrostis hooveri</i>	Perennial herb typically found in sandy soils in closed-cone coniferous forest, chaparral, cismontane woodland, and valley and foothill grassland habitat types. Elevation: 6-610 meters.	April-July	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitats are present within the project site at the appropriate elevation range; however, this species was not observed within the project site and is not expected to occur.
Douglas' fiddleneck <i>Amsinckia douglasiana</i>	Annual herb typically found in Monterey shale, dry soils in cismontane woodland and valley and foothill grassland habitats. Elevation range: 0–1950 meters.	March–May	--/--/4.2	Suitable Conditions Present; Species Absent: Suitable woodland and grassland habitats are present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Arroyo de la Cruz manzanita <i>Arctostaphylos cruzensis</i>	Perennial evergreen shrub that is typically found in chaparral, mixed evergreen forest, Northern coastal scrub, coastal sage scrub, closed-cone pine forest, and valley grassland habitats. Elevation range: 60–310 meters.	December–March	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable woodland, scrub, and grassland habitats are present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Hoover's manzanita <i>Arctostaphylos hooveri</i>	Perennial evergreen shrub that is typically found in broadleaved upland forest, chaparral (rocky), cismontane woodland, and lower montane coniferous forest habitats. Elevation range: 480–1,035 meters.	February–June	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable woodland and chaparral habitats are present within the BSA; however, the project site is not located within the appropriate elevation range for this species. This species was not observed during the survey completed during the appropriate blooming period; therefore, this species is not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Santa Lucia manzanita <i>Arctostaphylos luciana</i>	Perennial evergreen shrub that is typically found in shale soils in chaparral and cismontane woodland habitats. Elevation range: 350–850 meters.	December–March	--/–/1B.2	Suitable Conditions Present; Species Absent: Suitable woodland and chaparral habitats are present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Bishop manzanita <i>Arctostaphylos obispoensis</i>	Perennial evergreen shrub found on serpentinite, rocky soils in closed-cone coniferous forest, chaparral, and cismontane woodland habitats. Serpentinite endemic. Elevation range: 150–1,005 meters	February–June	--/–/4.3	Suitable Conditions Absent; Species Absent: Woodland and chaparral habitats are present within the project site at the appropriate elevation range; however, the species is a serpentinite endemic and the project site lacks serpentinite soils. This species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
marsh sandwort <i>Arenaria paludicola</i>	Perennial stoloniferous herb typically found in sandy soils in marshes and swamps (freshwater or brackish). Grows through dense mats of <i>Typha</i> , <i>Juncus</i> , <i>Scirpus</i> , etc. in freshwater marsh. Elevation range: 3–170 meters.	May–August	FE/SE/1B.1	Suitable Conditions Absent; Species Absent: The project site is not located within the appropriate elevation range nor does it support marsh or swamp habitats suitable for this species. This species was not observed within the project site during the appropriate blooming period and is not expected to occur.
Indian Valley spineflower <i>Aristocapsa insignis</i>	Annual herb typically found in cismontane woodland in sandy soils. Elevation: 300–600 meters.	May–September	--/–/1B.2	Suitable Conditions Present; Species Absent: Suitable woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Carlotta Hall's lace fern <i>Aspidotis carlotta-halliae</i>	Perennial rhizomatous herb typically (but not always) found in serpentinite soils in chaparral and cismontane woodland habitats. Elevation range: 100–1,400 meters.	January–December	--/–/4.2	Suitable Conditions Present; Species Absent: Suitable woodland and chaparral habitats are present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Salinas milk-vetch <i>Astragalus macrodon</i>	Perennial herb typically found in sandstone shale, or serpentinite soils in chaparral (openings), cismontane woodland, and valley and foothill grassland habitats. Elevation range: 250–950 meters.	April–July	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable woodland, scrub, and grassland habitats are present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
San Simeon baccharis <i>Baccharis plummerae</i> ssp. <i>glabrata</i>	Perennial deciduous shrub typically found in coastal scrub habitat. Elevation range: 50–480 meters.	June	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable scrub habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site and is therefore not expected to occur.
round-leaved filaree <i>California macrophylla</i>	Annual herb typically found in clay soils in cismontane woodland and valley and foothill grassland habitats. Elevation range: 15–1,200 meters.	March–May	--/--/1B.1	Suitable Conditions Present; Species Absent: Suitable scrub habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
club-haired mariposa lily <i>Calochortus clavatus</i> var. <i>clavatus</i>	Perennial bulbiferous herb typically found in serpentinite, clay, and rocky soils in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Elevation range: 75–1,300 meters.	March–June	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, scrub, and grassland habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
late-flowered mariposa lily <i>Calochortus fimbriatus</i>	Perennial bulbiferous herb typically (but not always) found in serpentinite soils in chaparral, cismontane woodland, and riparian woodland habitats. Elevation range: 275–1,905 meters.	June–August	--/--/1B.3	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site and is therefore not expected to occur.
San Luis mariposa-lily <i>Calochortus obispoensis</i>	Perennial bulbiferous herb typically (but not always) found in serpentinite soils in chaparral, cismontane woodland, coastal scrub and valley and foothill grassland habitats. Elevation range: 50–730 meters.	May–July	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, scrub, and grassland habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
La Panza mariposa-lily <i>Calochortus simulans</i>	Perennial bulbiferous herb typically found in sandy, often granitic, sometimes serpentinite soils in chaparral, cismontane woodland, lower montane coniferous forest, and valley and foothill grassland habitats. Elevation range: 380–1,150 meters.	April–June	--/--/1B.3	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
dwarf calycadenia <i>Calycadenia villosa</i>	Annual herb typically found in rocky, fine soils in chaparral, cismontane woodland, meadows and seeps, and valley and foothill grassland habitats. Elevation range: 240–1,350 meters.	May–October	--/--/1B.1	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Santa Cruz Mountains pussypaws <i>Calyptridium parryi</i> var. <i>hesseae</i>	Annual herb typically found in sandy or gravelly openings in chaparral and cismontane woodland habitats. Elevation range: 305–1,530 meters.	May–August	--/--/1B.1	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Hardham's evening-primrose <i>Camissoniopsis hardhamiae</i>	Annual herb typically found in sandy, decomposed carbonate soils in disturbed/burned areas and in chaparral and cismontane woodland habitats. Elevation range: 140–945 meters.	March–May	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
San Luis Obispo sedge <i>Carex obispoensis</i>	Perennial rhizomatous herb typically found in serpentinite seeps, sometimes gabbro, and often in clay soils. Usually found in closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland habitats. Elevation range: 10–820 meters.	April–June	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral, scrub, and grassland habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
 Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
San Luis Obispo owl's clover <i>Castilleja densiflora</i> ssp. <i>obispoensis</i>	Annual (hemiparasitic) herb typically (but not always) found in serpentinite soils in meadows and seeps and valley and foothill grassland habitats. Elevation range: 10–430 meters.	March–May	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
California jewel-flower <i>Caulanthus californicus</i>	Annual herb typically found in sandy soils in chenopod scrub, pinyon and juniper woodland, and valley and foothill grassland habitats. Elevation range: 61–1,000 meters.	February–May	FE/SE/1B.1	Suitable Conditions Present; Species Absent: Suitable grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur. The project site is also likely outside the range of this species.
Lemmon's jewelflower <i>Caulanthus lemmonii</i>	Annual herb typically found in pinyon and juniper woodland and valley and foothill grassland habitats. Elevation range: 80–1,580 meters.	February–May	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
purple amole <i>Chlorogalum purpureum</i> var. <i>purpureum</i>	Perennial bulbiferous herb typically found in gravelly, clay soils in chaparral, cismontane woodland, and valley and foothill grassland habitats. Elevation range: 205–385 meters.	April–June	FT/--/1B.1	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Douglas' spineflower <i>Chorizanthe douglasii</i>	Annual herb typically found in sandy or gravelly soils in chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest, and valley and foothill grassland habitats. Elevation range: 55–1,600 meters.	April–July	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, scrub, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Palmer's spineflower <i>Chorizanthe palmeri</i>	Annual herb typically (but not always) found in rocky, serpentinite soils in chaparral, cismontane woodland, and valley and foothill grassland habitats. Elevation range: 55–945 meters.	April–August	--/--/4.2	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
straight-awned spineflower <i>Chorizanthe rectispina</i>	Annual herb typically found in chaparral, cismontane woodland, and coastal scrub habitats. Elevation range: 85–1,035 meters.	April–July	--/--/1B.3	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and scrub habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Chorro Creek bog thistle (San Luis Obispo fountain thistle) <i>Cirsium fontinale</i> var. <i>obispoense</i>	Perennial herb found in serpentinite seeps and drainages in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Serpentinite endemic. Elevation range: 35–385 meters.	February–September	FE/SE/1B.2	Suitable Conditions Absent; Species Absent: Chaparral, woodland, scrub, and grassland habitat is present within the project site at the appropriate elevation range; however, the species is a serpentinite endemic and the project site lacks serpentinite soils. This species was not observed within the project site and is not expected to occur.
Jolon clarkia <i>Clarkia jolonensis</i>	Annual herb typically found in chaparral, cismontane woodland, coastal scrub, and riparian woodland habitats. Elevation range: 20–660 meters.	April–June	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and scrub habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Lewis' clarkia <i>Clarkia lewisii</i>	Annual herb typically found in broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub habitats. Elevation range: 30–1,195 meters.	May–July	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and scrub habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
monkey-flower savory <i>Clinopodium mimulooides</i>	Perennial herb typically found in streambanks in mesic soils in chaparral and North Coast coniferous forest habitats. Elevation range: 350–1,800 meters.	June–October	--/--/4.2	Suitable Conditions Absent; Species Absent: The project site does not support streambanks with mesic soils suitable for this species. This species was not observed within the project site. Therefore, this species is not expected to occur within the project site due to the lack of suitable habitat.
San Antonio collinsia <i>Collinsia antonina</i>	Annual herb typically found in chaparral and cismontane woodland habitats. Elevation range: 280–365 meters.	March–May	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
San Francisco collinsia <i>Collinsia multicolor</i>	Annual herb typically found in closed-cone coniferous forest and coastal scrub habitats in serpentinite soils. Elevation range: 30-250 meters.	February-May	--/--/1B.2	Suitable Conditions Absent: The project site is not located within the appropriate elevation range and does not support suitable habitat for this species. This species was not observed and is not expected to occur.
Rattan's cryptantha <i>Cryptantha rattanii</i>	Annual herb typically found in cismontane woodland, riparian woodland, and valley and foothill grassland habitats. Elevation range: 245–915 meters.	April–July	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable woodland and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
small-flowered gypsum-loving larkspur <i>Delphinium gypsophilum</i> ssp. <i>parviflorum</i>	Perennial herb typically found in rocky, clay, sometimes serpentinite soils in cismontane woodland and valley and foothill grassland habitats. Elevation range: 190–350 meters.	March–June	--/--/3.2	Suitable Conditions Present; Species Absent: Suitable woodland and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
dune larkspur <i>Delphinium parryi</i> ssp. <i>blochmaniae</i>	Perennial herb typically found in chaparral (maritime) and coastal dune habitats. Elevation range: 0–200 meters.	April–June	--/--/1B.2	Suitable Conditions Absent; Species Absent: The project site is not located within the appropriate elevation range and does not support maritime chaparral or coastal dune habitat suitable for this species. This species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
umbrella larkspur <i>Delphinium umbracolorum</i>	Perennial herb typically found in foothill woodland habitats. Elevation 400–1,600 meters.	April–June	--/--/1B.3	Suitable Conditions Present; Species Absent: Suitable woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Koch's cord moss <i>Entosthodon kochii</i>	Moss typically found in cismontane woodland habitat. Elevation range: 180–1,000 meters.	N/A	--/--/1B.3	Suitable Conditions Present; Species Absent: Suitable woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site and is therefore not expected to occur.
yellow-flowered eriastrum <i>Eriastrum luteum</i>	Annual herb typically found in sandy or gravelly soils in broadleafed upland forest, chaparral and cismontane woodland habitats. Elevation range: 290–1,000 meters.	May–June	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
elegant wild buckwheat <i>Eriogonum elegans</i>	Annual herb typically found in sandy or gravelly soils, often in washes and sometimes roadsides, in cismontane woodland and valley and foothill grassland habitats. Elevation range: 200–1,525 meters.	May–November	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable woodland and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur. Buckwheat present in the project site but not in bloom yet was likely slender buckwheat (<i>E. gracile</i>).

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Jepson's woolly sunflower <i>Eriophyllum jepsonii</i>	Perennial herb typically (but not always) found in serpentinite soils in chaparral, cismontane woodland, and coastal scrub habitats. Elevation range: 200–1,025 meters.	April–June	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and scrub habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Santa Lucia monkeyflower <i>Erythranthe hardhamiae</i>	Annual herb typically found in sandy, sandstone outcrops, and sometimes serpentinite soils in chaparral (openings) habitat. Elevation range: 300–730 meters.	March–May	--/--/1B.1	Suitable Conditions Present; Species Absent: Suitable chaparral habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
San Benito poppy <i>Eschscholzia hyppecoides</i>	Annual herb typically (but not always) found in serpentinite clay in chaparral, cismontane woodland, and valley and foothill grassland habitats. Elevation range: 200–1,500 meters.	March–June	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Ojai fritillary <i>Frittilaria ojaiensis</i>	Perennial bulbiferous herb typically found in rocky soils in broadleaved upland forest (mesic), chaparral, cismontane woodland, and lower montane coniferous forest habitats. Elevation range: 225–998 meters.	February–May	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Hardham's bedstraw <i>Galium hardhamiae</i>	Perennial herb found in serpentinite soils in closed-cone coniferous forest and chaparral habitats. Serpentinite endemic. Elevation range: 395–975 meters.	April–October	--/--/1B.3	Suitable Conditions Present; Species Absent: Suitable chaparral habitat is present within the project site at the appropriate elevation range; however, the species is a serpentinite endemic and the project site lacks serpentinite soils. This species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
hogwallow starfish <i>Hesperavex caulescens</i>	Annual herb sometimes found in alkaline soils in valley and foothill grassland (mesic, clay soils), and shallow vernal pools. Elevation range: 0–505 meters.	March–June	--/--/4.2	Suitable Conditions Absent; Species Absent: Suitable grassland habitat is present within the project site at the appropriate elevation range; however, soils in the project site are not mesic and this species was not observed within the project site during the appropriate blooming period. It is therefore not expected to occur.
Santa Lucia dwarf rush <i>Juncus luciensis</i>	Annual herb typically found in chaparral, Great Basin scrub, Lower montane coniferous forest, meadows and seeps, and vernal pools. Elevation range: 300–2,040 meters.	April–July	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
pale-yellow layia <i>Layia heterotricha</i>	Annual herb typically found in alkaline or clay soils in cismontane woodland, coastal scrub, pinyon and juniper woodland, and valley and foothill grassland habitats. Elevation range: 300–1,705 meters.	March–June	--/--/1B.1	Suitable Conditions Present; Species Absent: Suitable woodland, scrub, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
small-leaved lomatium <i>Lomatium parvifolium</i>	Perennial herb typically (but not always) found in serpentinite soils in closed-cone coniferous forest in chaparral, coastal scrub, and riparian woodland habitats. Elevation range: 20–700 meters.	January–June	--/--/4.2	Suitable Conditions Present; Species Absent: Suitable chaparral and scrub habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
San Luis Obispo County lupine <i>Lupinus ludovicianus</i>	Perennial herb typically found in sandstone or sandy soils in chaparral and cismontane woodland habitats. Elevation range: 50–525 meters.	April–July	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur. The project site is also likely outside the range of this species.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Indian Valley bush-mallow <i>Malacothamnus aboriginum</i>	Perennial deciduous shrub typically found in rocky, granitic, often burned areas in chaparral and cismontane woodland habitats. Elevation range: 150–1,700 meters.	April–October	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Jones' bush mallow <i>Malacothamnus jonesii</i>	Perennial deciduous shrub typically found in chaparral and cismontane woodland habitats. Elevation range: 160–1,075 meters.	March–October	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Carmel Valley bush-mallow <i>Malacothamnus palmeri</i> var. <i>involutus</i>	Perennial deciduous shrub typically found in chaparral, cismontane woodland, and coastal scrub habitats. Elevation range: 30–1,100 meters.	April–October	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and scrub habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Santa Lucia bush-mallow <i>Malacothamnus palmeri</i> var. <i>palmeri</i>	Perennial deciduous shrub typically found in rocky soils in chaparral habitats. Elevation range: 60–360 meters.	May–July	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Carmel Valley malacothrix <i>Malacothrix saxatilis</i> var. <i>arachnoidea</i>	Perennial rhizomatous herb typically found in chaparral (rocky) and coastal scrub habitats. Elevation range: 25–1,036 meters.	March–December	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and scrub habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
marsh microseris <i>Microseris paludosa</i>	Perennial herb typically found in closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland habitats. Elevation range: 5–355 meters.	April–July	--/--1B.2	Suitable Conditions Present; Species Absent: Suitable woodland, scrub, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
San Antonio Hills monardella <i>Monardella antonina</i> ssp. <i>antonina</i>	Perennial rhizomatous herb typically found in chaparral and cismontane woodland habitats. Elevation range: 320–1,000 meters.	June–August	--/--/3	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site and is therefore not expected to occur.
Palmer’s monardella <i>Monardella palmeri</i>	Perennial rhizomatous herb typically found in chaparral and cismontane woodland habitats in serpentinite soils. Elevation range: 200-800 meters.	June–August	--/--1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and woodland habitat is present within the project site at the appropriate elevation range; however, this perennial species was not observed within the project site and is therefore not expected to occur.
woodland woollythreads <i>Monolopia gracilens</i>	Annual herb typically (but not always) found in serpentinite soils in broadleaved upland forest (openings), chaparral (openings), cismontane woodland, North Coast coniferous forest (openings), and valley and foothill grassland habitats. Elevation range: 100–1,200 meters.	February–July	--/--1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
spreading navarretia <i>Navarretia fossalis</i>	Annual herb typically found in chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, and vernal pools. Elevation range: 30–655 meters.	April–June	FT/--/1B.1	Suitable Conditions Absent; Species Absent: The project site does not support chenopod scrub, marshes, swamps, playas, or vernal pools suitable for this species. Additionally, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
shining navarretia <i>Navarretia nigelliformis</i> ssp. <i>radians</i>	Annual herb typically found in clay soils in cismontane woodland, valley and foothill grassland, and vernal pool habitats. Elevation range: 76–1,000 meters.	March–July	-- / -- / 1B.2	Suitable Conditions Present; Species Absent: Suitable woodland and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
prostrate vernal pool navarretia <i>Navarretia prostrata</i>	Annual herb typically found in mesic soils in coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), and vernal pool habitats. Elevation range: 3–1,210 meters.	April–July	--/--/1B.1	Suitable Conditions Absent; Species Absent: Scrub and grassland habitat is present within the project site at the appropriate elevation range; however, soils in the project site are not mesic and the project site does not support vernal pool habitat. This species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Paso Robles navarretia <i>Navarretia mitracarpa</i>	Annual herb endemic to California and typically found in chaparral, valley and foothill grassland, and foothill woodland habitats. Serpentinite endemic. Elevation range: 200–500 meters.	May–July	--/--/4.3	Species Present: This species was observed within the project site. Two individual plants were observed in the northeastern portion of the project area (refer to Figure 4.4-3).
Robbins' nemacladus <i>Nemacladus secundiflorus</i> var. <i>robbinsii</i>	Annual herb typically found in openings of chaparral and valley and foothill grassland habitats. Elevation range: 350–1,700 meters.	April–June	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
large-flowered nemacladus <i>Nemacladus secundiflorus</i> var. <i>secundiflorus</i>	Annual herb typically found in openings of chaparral and valley and foothill grassland habitats. Elevation range: 350–1,700 meters.	April–June	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
hooked popcorn flower <i>Plagiobothrys uncinatus</i>	Annual herb typically found in chaparral (sandy), cismontane woodland, and valley and foothill grassland habitats. Elevation range: 300–760 meters.	April–May	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur. <i>Plagiobothrys</i> spp. were observed in the project site, but did not exhibit hooked calyx hairs as in <i>P. uncinatus</i> .
Hoffman's sanicula <i>Sanicula hoffmannii</i>	Perennial herb typically found in serpentinite or clay soils in broadleafed upland forest, coastal bluff scrub, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest habitats. Elevation range: 30–300 meters.	March–May	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and scrub habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
San Gabriel ragwort <i>Senecio astephanus</i>	Perennial herb typically found on rocky slopes in coastal bluff scrub and chaparral habitats. Elevation range: 400–1,500 meters.	May–July	--/--/4.3	Suitable Conditions Present; Species Absent: Suitable chaparral habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
most beautiful jewel-flower <i>Streptanthus albidus</i> ssp. <i>peramoenus</i>	Annual herb typically (but not always) found in serpentinite soils in chaparral, cismontane woodland, and valley and foothill grassland habitats. Elevation range: 95–1,000 meters.	March–October	--/--/1B.2	Suitable Conditions Present; Species Absent: Suitable chaparral, woodland, and grassland habitat is present within the project site at the appropriate elevation range; however, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Mason's neststraw <i>Stylocline masonii</i>	Annual herb typically found in sandy soils in chenopod scrub and pinyon and juniper woodland habitats. Elevation range: 100–1,200 meters.	March–May	--/--/1B.1	Suitable Conditions Absent; Species Absent: The project site does not support chenopod scrub or pinyon and juniper woodland habitat suitable for this species. Additionally, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
 Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Blooming Period	Legal Status Federal/State/CNPS	Rationale for Expecting Presence or Absence
Vortriede's spineflower <i>Systemotheca vortriedei</i>	Annual herb typically found in sandy or serpentinite soils in chaparral and cismontane woodland habitats. Elevation range: 500–1,600 meters.	May–September	--/--/4.3	Suitable Conditions Absent; Species Absent: The project site is not located within the appropriate elevation range for this species. Additionally, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Cook's triteleia <i>Triteleia ixioides ssp. cookii</i>	Perennial bulbiferous herb typically (but not always) found in serpentinite seeps in closed-cone coniferous forest and cismontane woodland habitats. Elevation range: 150–700 meters.	May–June	--/--/1B.3	Suitable Conditions Absent; Species Absent: The project site does not support serpentinite seep habitat suitable for this species. Additionally, this species was not observed within the project site during the appropriate blooming period and is therefore not expected to occur.
Natural Communities of Concern				
Purple Needlegrass Grassland	(41.150.04). Purple needlegrass is a perennial bunchgrass widespread in California west of the Sierra Nevada crest. It is one of four species of needlegrass in the State, three of which are native. Because of its large geographic distribution, purple needlegrass often is a dominant, co-dominant or subdominant in many grassland and shrubland plant communities			Present: This natural community is present within the project site in a few patches in the southwestern portion of the project site.
Sycamore Alluvial Woodland	(CTT62100CA). An open to closed riparian woodland that is dominated by <i>Platanus racemosa</i> . The subcanopy includes <i>Aesculus californica</i> and <i>Sambucus nigra</i> . This community occurs in braided channels of intermittent streams from Alameda County to Santa Barbara County.			Absent: This natural community was not observed within the project site.
Valley Oak Woodland	(CTT71130CA). Habitat is dominated by valley oak (<i>Quercus lobata</i>) and is typically more open with a grassy-understoried savanna rather than a closed woodland. Valley oak is typically the only tree sp. Present within this community and is California's largest broad-leaved tree, with mature individuals reaching 15-35 meters in height.			Absent: This natural community was not observed within the project site.

Status Codes:

Federal: FE = Federally Endangered; FT = Federally Threatened

State: SE = State Endangered; ST = State Threatened; SR = State Rare

California Native Plant Society (CNPS):

Rank 1B = rare, threatened, or endangered in California and elsewhere.

Rank 2 = rare, threatened, or endangered in California, but more common elsewhere.

Threat Code:

.1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 = Fairly endangered in California (20-80% occurrences threatened)

.3 = Not very endangered in California (<20% of occurrences threatened or no current threats known)

Table C-2. Special-Status Wildlife Species Investigated for Potential Occurrence

Species Name	Habitat and Distribution	Legal Status Federal/State/Other	Rationale for Expecting Presence or Absence
Invertebrates			
vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Occur in vernal pool habitats including depressions in sandstone, to small swale, earth slump, or basalt-flow depressions with a grassy or, occasionally, muddy bottom in grassland (SWCA 2016).	FT/--/--	Suitable Conditions Absent: The project site does not support vernal pool habitat necessary to support this species. There are no known occurrences within a 5-mile radius of the project site. Therefore, this species is not expected to occur within the project site.
Kern primrose sphinx moth <i>Euproserpinus euterpe</i>	A moderately sized moth that occupies sandy washes consisting of coarse to fine textured, decomposed granite soil in Walker Basin, Carrizo Plain, and Cuyama Valley. Occupied sites support <i>Erodium cicutarium</i> , <i>Nemophila menziesii</i> , <i>Chysothamnus nauseosus</i> , <i>Lasthenia chrysostoma</i> , and <i>Bromus arenarius</i> . <i>Camissonia</i> is the primary food plant for the Kern primrose sphinx moth.	FT/--/--	Suitable Conditions Absent: The project site is not located within the known geographic range of this species and does not support sandy washes suitable for this species. There are no known occurrences within a 5-mile radius of the project site. This species was not observed during surveys of the project site and is not expected to occur. Therefore, this species is not expected to occur within the project site.
Fish			
South-Central California Coast steelhead Distinct Population Segment (DPS) <i>Oncorhynchus mykiss</i>	Sacramento-San Joaquin/South Coast flowing waters. Optimally, clear, cool water with abundant instream cover, well-vegetated stream margins, relatively stable water flow, and a 1:1 pool-to-riffle ratio.	FT/--/--	Suitable Conditions Absent: The project site does not support suitable aquatic habitat for this species. There are no known occurrences within a 5-mile radius of the project site. Therefore, this species is not expected to occur within the project site.
Amphibians			
California tiger salamander <i>Ambystoma californiense</i>	Occurs in grasslands or oak woodlands that support natural ephemeral pools or ponds that mimic them. This species requires seasonal water for breeding and small mammal burrows, crevices in logs, piles of lumber, and shrink-swell cracks in the ground for refuges. To be suitable, aquatic sites must retain at least 30 centimeters of water for a minimum of ten weeks in the winter.	FT/ST/SSC	Suitable Conditions Absent: The project site does not support suitable aquatic habitat for this species. There are no known occurrences of this species within a 5-mile radius of the project site. Therefore, this species is not expected to occur within the project site.
California red-legged frog <i>Rana draytonii</i>	Aquatic habitats with little or no flow and surface water depths to at least 2.3 feet. Presence of fairly sturdy underwater supports such as cattails.	FT/--/SSC	Suitable Conditions Absent: The project site does not support suitable aquatic habitat for this species. There are no known occurrences of this species within a 5-mile radius of the project site. Therefore, this species is not expected to occur within the project site.
western spadefoot <i>Spea hammondi</i>	Inhabits vernal pools in primarily grassland, but also in valley and foothill hardwood woodlands.	--/--/SSC	Suitable Conditions Absent: The project site does not support vernal pool habitat suitable for this species. There are no known occurrences of this species within a 5-mile radius of the project site. Therefore, this species is not expected to occur within the project site.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Legal Status Federal/State/Other	Rationale for Expecting Presence or Absence
Reptiles			
silvery legless lizard <i>Anniella pulchra pulchra</i>	Sandy or loose loamy soils under sparse vegetation. Soil moisture is essential. Prefer soils with high moisture content.	--/--/SSC	Suitable Conditions Absent: The project site does not support soils with a high moisture content required to constitute suitable habitat for silvery legless lizard. This species was not observed within the project site and is not expected to occur. The nearest documented CNDDDB occurrence is located approximately 2.17 miles southwest of the project site along the shore of the Nacimiento Reservoir (CNDDDB Occ. 43).
western pond turtle <i>Emys marmorata</i>	Quiet waters of ponds, lakes, streams, and marshes. Typically in the deepest parts with an abundance of basking sites.	--/--/SSC	Suitable Conditions Absent: The project site does not support suitable aquatic habitat for western pond turtle. There are no known occurrences of this species within a 5-mile radius of the project site. This species was not observed within the project site and is not expected to occur.
blunt-nosed leopard lizard <i>Gambelia sila</i>	Blunt-nosed leopard lizards inhabit open, sparsely vegetated areas of low relief on the San Joaquin Valley floor and in the surrounding foothills. On the Valley floor, they are most commonly found in the Nonnative Grassland, saltbrush scrub, and valley sink scrub.	FE/SE/FP	Suitable Conditions Absent: The project site is not located within the known geographic range of this species. There are no known occurrences of this species within a 5-mile radius of the project site. This species was not observed within the project site and is not expected to occur.
San Joaquin whipsnake <i>Masticophis flagellum ruddocki</i>	Ranges from Colusa County southward to the Grapevine in the Kern County portion of the San Joaquin Valley and westward into the inner South Coast Ranges. Occurs in open, dry, treeless areas, including grassland and saltbush scrub. Takes refuge in rodent burrows, under shaded vegetation and objects	--/--/SSC	Suitable Conditions Present: The project site supports suitable grassland habitat for this species. The nearest documented CNDDDB occurrence of this species is located approximately 9.65 miles east of the project site (CNDDDB Occ. 86). This species was not observed within the project site but is considered to have the potential to occur.
coast horned lizard <i>Phrynosoma blainvillii</i>	Frequents a wide variety of habitats; most commonly in lowlands along sandy washes with scattered low bushes.	--/--/SSC	Suitable Conditions Present; Species Present: The project site supports suitable scrub habitat for this species. While the nearest documented CNDDDB occurrence of this species is located approximately 10 miles northeast of the project site (CNDDDB Occ. 686), this species was observed within the scrub habitat within the project site along Oak Shores Drive and is therefore considered to be present.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
 Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Legal Status Federal/State/Other	Rationale for Expecting Presence or Absence
Birds			
tricolored blackbird <i>Agelaius tricolor</i>	(Nesting colony); requires open water, protected nesting substrate such as cattails or tall rushes, and foraging area with insect prey.	MBTA/--/SSC	Suitable Conditions Absent: The project site does not support open water or vegetation that would constitute suitable nesting habitat for this species. There are no known occurrences of this species within a 5-mile radius of the project site. This species was not observed during surveys of the project site. This species has the potential to occur within the project site as a migrant; however, nesting is not expected to occur due to lack of suitable habitat.
golden eagle <i>Aquila chrysaetos</i>	(Nesting and nonbreeding/wintering) rolling foothills, mountain areas, sage-juniper flats, and desert areas. Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	MBTA/--/FP	Suitable Conditions Present: The project site supports suitable foraging and nesting habitat for golden eagle. The nearest documented occurrence of this species is located approximately 8.5 miles southwest of the project site (CNDDDB Occ. 140). This species was not observed during surveys of the project site but is considered to have the potential to occur.
great blue heron <i>Ardea herodias</i>	Common throughout most of California in shallow estuaries and fresh and saline emergent wetlands. Less common along riverine and rocky marine shores, in croplands, pastures, and in mountains above foothills.	MBTA/--/SA	Suitable Conditions Absent: The project site does not support aquatic habitat suitable for great blue heron. There are no known occurrences within a 5-mile radius of the project site. This species was not observed during surveys of the project site and is not expected to occur due to the lack of suitable habitat.
burrowing owl <i>Athene cunicularia</i>	Open, dry grasslands, deserts, and scrublands. Subterranean nester, dependent upon burrowing mammals.	MBTA/--/SSC	Suitable Conditions Absent: While the project site supports grassland and scrub habitat, these areas are not likely suitable for burrowing owl for the following reasons: the pipeline would be adjacent to a road and subjected to frequent disturbances, in an area where burrowing owls would not be expected to be acclimated to such disturbances; and the new storage pond, sludge drying bed, and spray field would be located either in areas with tall grasses or in oak savannah that are not conducive to burrowing owl burrows and/or foraging. The nearest documented occurrence of this species is located approximately 10 miles east of the project site (CNDDDB Occ. 591). This species was not observed during the surveys of the project site and is not expected to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Legal Status Federal/State/Other	Rationale for Expecting Presence or Absence
ferruginous hawk <i>Buteo regalis</i>	(Nonbreeding/wintering) open grasslands, sagebrush flats, desert scrub, low foothills, and pinyon-juniper habitats. Eats mostly lagomorphs, ground squirrels, and mice	MBTA/--/WL	Suitable Wintering Conditions Present; Suitable Nesting Conditions Absent: The project site supports suitable scrub and grassland habitat for nonbreeding/wintering ferruginous hawks. The nearest documented occurrence of this species is located approximately 12.38 miles east of the project site (CNDDDB Occ. 75). This species was not observed during surveys of the project site but is considered to have the potential to occur.
northern harrier <i>Circus cyaneus</i>	Frequents meadows, grasslands, open rangelands, desert sinks, fresh and saltwater emergent wetlands; seldom found in wooded areas. Permanent resident of the northeastern plateau and coastal areas; less common resident of the Central Valley. Widespread winter resident and migrant in suitable habitat.	MBTA/--/SSC	Suitable Conditions Absent: While the project site supports grassland habitat, these areas are adjacent to or surrounded by wooded areas and are not conducive to the species. The nearest documented occurrence of this species is located approximately 9.35 miles northwest of the project site (CNDDDB Occ. 10). This species was not observed during surveys of the project site and is not expected to occur.
southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Occurs in riparian woodlands of southern California.	FE/SE/SA	Suitable Conditions Absent: The project site is not located within the known geographical distribution of this species and does not support suitable riparian woodland habitat. There are no documented occurrences of this species within a 5-mile radius of the project site. This species was not observed during surveys of the project site and is not expected to occur due to the lack of suitable habitat.
California horned lark <i>Eremophila alpestris actia</i>	Occurs in short grass prairies, coastal plains, fallow grain fields and alkali flats. Found in coastal regions from Sonoma to San Diego county, and west to the San Joaquin Valley. Nest sites are typically found on bare ground.	MBTA/--/WL	Suitable Foraging and Nesting Conditions Present: The project site supports marginally suitable grassland habitat for California horned lark. The nearest documented occurrence of this species is located approximately 13.75 miles northeast of the project site (CNDDDB Occ. 59). This species was not observed during surveys of the project site but is considered to have the potential to occur.
prairie falcon <i>Falco mexicanus</i>	Occurs in dry, open terrain that is level or hilly and breeds on cliffs.	MBTA/--/WL	Suitable Foraging Conditions Present; Suitable Nesting Conditions Absent: The project site supports suitable foraging habitat for prairie falcon in the grassland, scrub, and woodland communities. The project site does not support cliffs suitable for breeding habitat. The project site is located within documented occurrences of prairie falcon (CNDDDB Occs. 182 and 274). This species was not observed during surveys of the project site and is considered to have the potential to forage (but not nest) within the project site.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Legal Status Federal/State/Other	Rationale for Expecting Presence or Absence
California condor <i>Gymnogyps californianus</i>	Occurs in open savannahs, grasslands, and foothill chaparral, in mountain ranges with moderate altitudes. Nest in deep canyons on rock walls with clefts.	MBTA,FE/SE/FP	Suitable Foraging Conditions Present; Suitable Nesting Conditions Absent: The project site does not support deep canyons or rock walls suitable for California condor nesting habitat. There are no documented occurrences of this species within a 10-mile radius of the project site but it is known to forage over wide ranges. This species was not observed during surveys of the project site and is considered to have the potential to forage (but not nest) within the project site.
bald eagle <i>Haliaeetus leucocephalus</i>	Occurs along ocean shore, lake margins and rivers for both nesting and wintering. Most nests within 1 mile of water.	MBTA/SE/FP	Suitable Foraging and Nesting Conditions Present: The project site is located approximately 2 miles north of the Nacimiento Reservoir and supports oak woodland that may provide suitable nesting habitat for bald eagle. The nearest documented occurrence of this species is located near the project site, approximately 0.6 mile east of the intersection of Oak Shores Drive and Lynch Canyon Road (CNDDDB Occ. 216). This species was not observed during surveys of the project site but is considered to have the potential to occur.
California clapper rail <i>Rallus longirostris obsoletus</i>	Occurs within salt and brackish marshes dominated by pickleweed and Pacific cordgrass. Currently, this species is restricted to marsh areas within the vicinity of San Francisco Bay. The last California clapper rail to be sighted in Morro Bay was documented in 1939.	MBTA, FE/SE/FP	Suitable Conditions Absent: The project site does not support marsh habitat suitable for California clapper rail. There are no documented occurrences of this species within a 10-mile radius of the project site. This species was not observed during surveys of the project site and is not expected to occur due to the lack of suitable nesting habitat.
yellow warbler <i>Setophaga petechia</i>	Usually found in riparian deciduous habitats in summer. Stays among cottonwoods, willows, alders, and other small trees and shrubs. Nest is an open cup placed 2-16 ft above ground in a deciduous sapling or shrub.	MBTA/--/SSC	Suitable Conditions Absent: The project site does not support riparian habitat suitable for yellow warbler. The nearest documented occurrence of this species is located approximately 10 miles northeast of the project site (CNDDDB Occ. 59). This species was not observed during surveys of the project site and is not expected to occur due to the lack of suitable nesting habitat.
least Bell's vireo <i>Vireo bellii pusillus</i>	Summer resident of southern California. Occurs in low riparian areas in the vicinity of water or in dry river bottoms below 2000 feet. Nests along the margins of bushes or twigs of willow, <i>Baccharis</i> or mesquite.	MBTA,FE/SE/SSC	Suitable Conditions Absent: The project site does not support riparian habitat suitable for least Bell's vireo. The nearest documented occurrence of this species is located approximately 10 miles northeast of the project site (CNDDDB Occ. 120). This species was not observed during surveys of the project site and is not expected to occur due to the lack of suitable nesting habitat.

Species Name	Habitat and Distribution	Legal Status Federal/State/Other	Rationale for Expecting Presence or Absence
other nesting birds Class Aves	Various habitats (nesting).	MBTA / -- / CDFW Code Section 3503	Suitable Conditions Present: Suitable foraging and nesting habitat for migratory birds is present within the project site. No nesting birds or activity was observed during surveys; however, the project site may be used by nesting birds active nest season (February 1-August 31).
Mammals			
pallid bat <i>Antrozous pallidus</i>	Inhabits deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting	--/--/SSC	Suitable Conditions Present: The project site supports suitable grassland, scrub, and woodland habitat for pallid bat. The nearest documented occurrence is located approximately 12 miles east of the project site (CNDDDB Occ. 213). This species was not observed during surveys of the project site but is considered to have the potential to occur.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	Occurs throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	--/CT/SSC	Suitable Foraging Conditions Present; Suitable Roosting Conditions Absent: The project site supports suitable foraging habitat for Townsend's big-eared bat. The nearest documented occurrence of this species is from 1938 and located approximately 3.25 miles west of the project site (CNDDDB Occ. 344). This species was not observed during surveys of the project site and is considered to have the potential to forage within the project site but not roost, due to its sensitivity to anthropogenic disturbances.
giant kangaroo rat <i>Dipodomys ingens</i>	Occupies dry, sandy grasslands and digs burrows in loose soil. It lives in colonies in isolated areas west of the San Joaquin Valley, including the Carrizo Plain, the Elkhorn Plain, and the Kettleman Hills.	FE/SE/--	Suitable Conditions Absent: The project site does not support sandy soils suitable for giant kangaroo rat and is located outside the known geographic distribution of giant kangaroo rat. This species was not observed within the project site and is not expected to occur.
hoary bat <i>Lasiurus cinereus</i>	Occurs in open habitats and habitat mosaics with access to trees for cover. Roosts in dense foliage of medium to large trees.	--/--/SA	Suitable Conditions Present: The project site supports suitable scrub and woodland habitat for hoary bat. The nearest documented occurrence of this species is located approximately 10 miles east of the project site (CNDDDB Occ. 111). This species was not observed during surveys of the project site but is considered to have the potential to occur.

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Species Name	Habitat and Distribution	Legal Status Federal/State/Other	Rationale for Expecting Presence or Absence
Monterey dusky-footed woodrat <i>Neotoma macrotis luciana</i>	Occurs in coastal central California in habitats that exhibit a moderate vegetative canopy, with a brushy understory. Builds nests of sticks and leaves at the base of, or within, a tree or shrub, or at the base of a hill. Primarily feeds on woody plants, but also eats fungi, flowers, grasses, and acorns.	--/--/SSC	Suitable Conditions Present: The project site supports suitable scrub and woodland habitat for Monterey dusky-footed woodrat. The nearest documented occurrence of this species is located approximately 11.25 miles southeast of the project site (CNDDDB Occ. 6). This species was not observed during surveys of the project site but is considered to have the potential to occur.
Salinas pocket mouse <i>Perognathus inornatus psammophilus</i>	Range extends from near Soledad southward to Hog Canyon in the Salinas Valley, Monterey Co. Salinas pocket mice occur on fine-textured, sandy soils. They may also occur on a variety of other substrates in open annual grassland and desert shrub communities.	--/--/SSC	Suitable Conditions Absent: The project site does not support suitable soils for this species and is not located within the known geographic distribution of Salinas pocket mouse. The nearest documented occurrence is located approximately 7.7 miles southeast of the project site (CNDDDB Occ. 2). This species is not expected to occur within the project site due to the geographic location and absence of suitable substrates.
American badger <i>Taxidea taxus</i>	Drier open stages of shrub, forest, and herbaceous habitats, with friable soils; needs sufficient food and open, uncultivated ground; digs burrows.	--/--/SSC	Suitable Conditions Present: The project site supports marginally suitable shrub, grassland, and woodland habitat for American badger. The nearest documented occurrence of this species is located approximately 8.75 miles southeast of the project site (CNDDDB Occ. 375). This species was not observed during surveys of the project site but is considered to have the potential to occur.
San Joaquin kit fox <i>Vulpes macrotis mutica</i>	The historic range of the San Joaquin kit fox included most of the San Joaquin Valley from San Joaquin County southward to southern Kern County. Currently, kit foxes occur in the remaining native valley and foothill grasslands and saltbush scrub communities of the valley floor and surrounding foothills from southern Kern County north to Merced County.	FE/ST/--	Suitable Conditions Absent: The project site is not located within the known geographic range of this species. The nearest documented occurrence of this species is located approximately 10 miles east of the project site (CNDDDB Occs. 405, 411). This species was not observed during surveys of the project site and is not expected to occur.

General references: Unless otherwise noted all habitat and distribution data provided by the CNDDDB.

Status Codes

--= No status

Federal: FE = Federal Endangered; FT= Federal Threatened; FC= Federal Candidate; CH= Federal Critical Habitat; PCH= Proposed Federal Critical Habitat; MBTA= Protected by Federal Migratory Bird Treaty Act

State: SE= State Endangered; ST= State Threatened; CT= Candidate Threatened

California Department of Fish and Wildlife: SSC= California Species of Special Concern; FP= Fully Protected Species; SA= Not formally listed but included in CDFW "Special Animal" List; WL= Watch List

Table C-3. Plant Species Observed (March 31, May 28, 2016, and May 11, 2017)

Common Name	Scientific Name	Family	Notes
common yarrow	<i>Achillea millefolium</i>	Asteraceae	
blow wives	<i>Achyrachaena mollis</i>	Asteraceae	
Spanish lotus	<i>Acmispon americanus</i> var. <i>americanus</i>	Fabaceae	Abundant in May 2016
deerweed	<i>Acmispon glaber</i>	Fabaceae	
Chilean lotus	<i>Acmispon wrangelianus</i>	Fabaceae	Abundant in March 2016
chamise	<i>Adenostoma fasciculatum</i>	Rosaceae	
tree of heaven	<i>Ailanthus altissima</i>	Simaroubaceae	
silver hairgrass	<i>Aira caryophyllea</i>	Poaceae	
ragweed	<i>Ambrosia</i> sp.	Asteraceae	
common fiddleneck	<i>Amsinckia intermedia</i>	Boraginaceae	Abundant in March 2016
small-flowered fiddleneck	<i>Amsinckia menziesii</i>	Boraginaceae	Abundant in March 2016
scarlet pimpernel	<i>Lysimachia arvensis</i>	Primulaceae	
bigberry manzanita	<i>Arctostaphylos glauca</i>	Ericaceae	Most likely; found one unripe fruit; not flowering but dominant in chaparral and common around Lake Nacimiento area
California sagebrush	<i>Artemisia californica</i>	Asteraceae	
milkweed	<i>Asclepias eriocarpa</i>	Apocynaceae	Woolly leaves; not flowering in May 2016; likely either <i>A. californica</i> or <i>A. eriocarpa</i>
Douglas's milkvetch	<i>Astragalus douglasii</i> var. <i>douglasii</i>	Fabaceae	
slender wild oat	<i>Avena barbata</i>	Poaceae	Dominant in grasslands
common wild oat	<i>Avena fatua</i>	Poaceae	
coyote brush	<i>Baccharis pilularis</i>	Asteraceae	
common goldenstar	<i>Bloomeria crocea</i> var. <i>crocea</i>	Themidaceae	
black mustard	<i>Brassica nigra</i>	Brassicaceae	
brodiaea	<i>Brodiaea</i> sp.	Themidaceae	Observed May 2017 <i>B. jolonensis</i> or <i>B. terrestris</i>
California brome	<i>Bromus carinatus</i>	Poaceae	
ripgut brome	<i>Bromus diandrus</i>	Poaceae	
soft chess brome	<i>Bromus hordeaceus</i>	Poaceae	
red brome	<i>Bromus madritensis</i> ssp. <i>rubens</i>	Poaceae	Dominant in grasslands
cheat grass	<i>Bromus tectorum</i>	Poaceae	
red maids	<i>Calandrinia ciliata</i>	Montiaceae	
sun cup	<i>Camissonia contorta</i>	Onagraceae	Abundant in March 2016
sun cup	<i>Camissonia strigulosa</i>	Onagraceae	Observed May 2017
camissoniopsis	<i>Camissoniopsis intermedia</i>	Onagraceae	Observed May 2017
shepherd's purse	<i>Capsella bursa-pastoris</i>	Brassicaceae	

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Common Name	Scientific Name	Family	Notes
Italian thistle	<i>Carduus pycnocephalus</i>	Asteraceae	
wooly Indian paintbrush	<i>Castilleja foliolosa</i>	Orobanchaceae	Appears wooly rather than bristly like <i>C. affinis</i>
valley tassels	<i>Castilleja attenuata</i>	Orobanchaceae	
purple owl's clover	<i>Castilleja exserta</i>	Orobanchaceae	
blue blossom	<i>Ceanothus thyrsiflorus</i> var. <i>repens</i>	Rhamnaceae	
totalote	<i>Centaurea melitensis</i>	Asteraceae	Abundant in May 2016 at north end of proposed pond
yellow star-thistle	<i>Centaurea solstitialis</i>	Asteraceae	
mouseear chickweed	<i>Cerastium glomeratum</i>	Caryophyllaceae	
yellow pincushion	<i>Chaenactis glabriuscula</i>	Asteraceae	
Cleveland's spineflower	<i>Chorizanthe clevelandii</i>	Polygonaceae	
bull thistle	<i>Cirsium vulgare</i>	Asteraceae	
chaparral clarkia	<i>Clarkia affinis</i>	Onagraceae	
elegant clarkia	<i>Clarkia unguiculata</i>	Onagraceae	
miner's lettuce	<i>Claytonia perfoliata</i>	Montiaceae	
Chinese houses	<i>Collinsia bartsiiifolia</i> var. <i>bartsiiifolia</i>	Plantaginaceae	
crassula	<i>Crassula tillaea</i>	Crassulaceae	Observed in May 2017
turkey-mullein	<i>Croton setiger</i>	Euphorbiaceae	
Bermuda grass	<i>Cynodon dactylon</i>	Poaceae	
jimson weed	<i>Datura wrightii</i>	Solanaceae	
American wild carrot	<i>Daucus pusillus</i>	Apiaceae	
three-ray tarweed	<i>Deinandra lobbii</i>	Asteraceae	Abundant in grasslands and ruderal areas in May 2016
royal larkspur	<i>Delphinium variegatum</i> ssp. <i>variegatum</i>	Ranunculaceae	One plant in oak woodland along Oak Shores Dr.
bluedicks	<i>Dichelostemma capitatum</i> ssp. <i>capitatum</i>	Themidaceae	
shooting star	<i>Dodecatheon clevelandii</i>	Primulaceae	
blue wild rye	<i>Elymus glaucus</i>	Poaceae	
Canada horseweed	<i>Erigeron canadensis</i>	Asteraceae	
California buckwheat	<i>Eriogonum fasciculatum</i>	Polygonaceae	
buckwheat	<i>Eriogonum</i> sp.	Polygonaceae	Observed in May 2017 (may be <i>E. nudum</i>)
buckwheat	<i>Eriogonum</i> sp.	Polygonaceae	Not in bloom yet; likely slender buckwheat (<i>E. gracile</i>) rather than elegant wild buckwheat (<i>E. elegans</i>) due to later blooming period
wooly yerba santa	<i>Eriodictyon tomentosum</i>	Boraginaceae	Abundant in chaparral in March 2016
broadleaf filaree	<i>Erodium botrys</i>	Geraniaceae	Abundant in grasslands in March 2016
red stemmed filaree	<i>Erodium cicutarium</i>	Geraniaceae	Abundant in grasslands in March 2016

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Common Name	Scientific Name	Family	Notes
white stemmed filaree	<i>Erodium moschatum</i>	Geraniaceae	Abundant in grasslands in March 2016
California poppy	<i>Eschscholzia californica</i>	Papaveraceae	
spurge	<i>Euphorbia</i> sp.	Euphorbiaceae	
rattail sixweeks grass	<i>Festuca myuros</i>	Poaceae	Dominant in grasslands
Italian ryegrass	<i>Festuca perennis</i>	Poaceae	
common bedstraw	<i>Galium aparine</i>	Rubiaceae	
	<i>Galium parisiense</i>	Rubiaceae	Observed May 2017
nit grass	<i>Gastridium phleoides</i>	Poaceae	
purplespot gilia	<i>Gilia clivorum</i>	Polemoniaceae	
slender-flowered gilia	<i>Gilia tenuiflora</i> ssp. <i>tenuiflora</i>	Polemoniaceae	
sawtooth goldenbush	<i>Hazardia squarrosa</i>	Asteraceae	
toyon	<i>Heteromeles arbutifolia</i>	Rosaceae	
telegraph weed	<i>Heterotheca grandiflora</i>	Asteraceae	Abundant in March 2016
summer mustard	<i>Hirschfeldia incana</i>	Brassicaceae	
Mediterranean barley	<i>Hordeum marinum</i> ssp. <i>gussoneanum</i>	Poaceae	Observed May 2017
foxtail barley	<i>Hordeum murinum</i> ssp. <i>leporinum</i>	Poaceae	Dominant in grasslands
smooth cat's ear	<i>Hypochaeris glabra</i>	Asteraceae	Observed May 2017
southern California walnut	<i>Juglans californica</i>	Juglandaceae	At least one tree in orchard where new WWTP is proposed; CNPS List 4.2 species; CEQA mitigation not required (watch list; limited distribution; not rare)
toad rush	<i>Juncus bufonius</i>	Juncaceae	Observed May 2017
California caltrop	<i>Kallstroemia californica</i>	Zygophyllaceae	
prickly lettuce	<i>Lactuca serriola</i>	Asteraceae	
henbit deadnettle	<i>Lamium amplexicaule</i>	Lamiaceae	
leather spineflower	<i>Lastarriaea coriacea</i>	Polygonaceae	Observed May 2017
California goldfields	<i>Lasthenia californica</i>	Asteraceae	
Pacific pea	<i>Lathyrus vestitus</i>	Fabaceae	
common peppergrass	<i>Lepidium nitidum</i>	Brassicaceae	
whiskerbrush	<i>Leptosiphon ciliatus</i>	Polemoniaceae	
narrowflower flaxflower	<i>Leptosiphon liniflorus</i>	Polemoniaceae	Observed May 2017
narrow-leaved cottonrose	<i>Logfia gallica</i>	Asteraceae	
lomatium	<i>Lomatium</i> sp.	Apiaceae	Observed May 2017
chaparral honeysuckle	<i>Lonicera interrupta</i>	Caprifoliaceae	
miniature lupine	<i>Lupinus bicolor</i>	Fabaceae	
chick lupine	<i>Lupinus microcarpus</i>	Fabaceae	Abundant in March 2016
sky lupine	<i>Lupinus nanus</i>	Fabaceae	Abundant in March 2016

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Common Name	Scientific Name	Family	Notes
lupine	<i>Lupinus</i> sp.	Fabaceae	Not flowering in March 2016; apparently different from other three lupines
bull mallow	<i>Malva nicaeensis</i>	Malvaceae	
cheeseweed	<i>Malva parviflora</i>	Malvaceae	
California manroot	<i>Marah fabacea</i>	Cucurbitaceae	
horehound	<i>Marrubium vulgare</i>	Lamiaceae	
pineapple weed	<i>Matricaria discoidea</i>	Asteraceae	
burclover	<i>Medicago polymorpha</i>	Fabaceae	Abundant in March 2016
sourclover	<i>Mellilotus indicus</i>	Fabaceae	
slender cottonweed	<i>Micropus californicus</i>	Asteraceae	
holly leaf navarretia	<i>Navarretia atractyloides</i>	Polemoniaceae	
purple navarretia	<i>Navarretia pubescens</i>	Polemoniaceae	Few plants observed in chaparral along Oak Shores Drive
oleander	<i>Nerium oleander</i>	Apocynaceae	
olive	<i>Olea europaea</i>	Oleaceae	In orchard where new WWTP is proposed
pricklypear cactus	<i>Opuntia</i> sp.	Cactaceae	
scarlet bugler	<i>Penstemon centranthifolius</i>	Plantaginaceae	
canary grass	<i>Phalaris</i> sp.	Poaceae	Observed May 2017
fiesta flower	<i>Pholistoma auritum</i>	Boraginaceae	
gray pine	<i>Pinus sabiniana</i>	Pinaceae	
popcorn flower	<i>Plagiobothrys nothofulvus</i>	Boraginaceae	Abundant in March 2016; one of three different popcorn flowers; no hooked calyx hairs as in <i>P. uncinatus</i> Observed May 2017
popcorn flower	<i>Plagiobothrys</i> sp.	Boraginaceae	Abundant in March 2016; one of three different popcorn flowers; no hooked calyx hairs as in <i>P. uncinatus</i>
popcorn flower	<i>Plagiobothrys</i> sp.	Boraginaceae	One of three different popcorn flowers; no hooked calyx hairs as in <i>P. uncinatus</i>
California plantain	<i>Plantago erecta</i>	Plantaginaceae	
seablush	<i>Plectritis ciliosa</i>	Valerianaceae	
bulbous bluegrass	<i>Poa bulbosa</i>	Poaceae	
pine bluegrass	<i>Poa secunda</i>	Poaceae	
pomegranate	<i>Punica granatum</i>	Lythraceae	In orchard where new WWTP is proposed
holly leaf cherry	<i>Prunus ilicifolia</i>	Rosaceae	
Jersey cudweed	<i>Pseudognaphalium luteoalbum</i>	Asteraceae	
coast live oak	<i>Quercus agrifolia</i>	Fagaceae	
blue oak	<i>Quercus douglasii</i>	Fagaceae	Dominant in oak woodlands

County Service Area 7 (Oak Shores) Wastewater Treatment Facility Upgrade Project SEIR
Appendix C Biological Resources Background Information

Common Name	Scientific Name	Family	Notes
valley oak	<i>Quercus lobata</i>	Fagaceae	Observed May 2017
California buttercup	<i>Ranunculus californicus</i>	Ranunculaceae	
black locust	<i>Robinia pseudoacacia</i>	Fabaceae	
rosemary	<i>Rosmarinus officinalis</i>	Lamiaceae	
curly dock	<i>Rumex crispus</i>	Polygonaceae	
willow	<i>Salix</i> sp.	Salicaceae	Observed in May 2017
black sage	<i>Salvia mellifera</i>	Lamiaceae	
hummingbird sage	<i>Salvia spathacea</i>	Lamiaceae	
poison sanicle	<i>Sanicula bipinnata</i>	Apiaceae	
common catchfly	<i>Silene gallica</i>	Caryophyllaceae	
milk thistle	<i>Silybum marianum</i>	Asteraceae	
blue eyed grass	<i>Sisyrinchium bellum</i>	Iridaceae	
nightshade	<i>Solanum umbelliferum</i>	Solanaceae	Observed May 2017
common chickweed	<i>Stellaria media</i>	Caryophyllaceae	
purple needlegrass	<i>Stipa pulchra</i>	Poaceae	Abundant in some areas toward south alignment
poison oak	<i>Toxicodendron diversilobum</i>	Anacardiaceae	Observed May 2017
rose clover	<i>Trifolium hirtum</i>	Fabaceae	
clover	<i>Trifolium microdon</i>	Fabaceae	Observed May 2017
dwarf nettle	<i>Urtica urens</i>	Urticaceae	
silver puffs	<i>Uropappus lindleyi</i>	Asteraceae	
western vervain	<i>Verbena lasiostachys</i>	Verbenaceae	
purple vetch	<i>Vicia benghalensis</i>	Fabaceae	
goosefoot violet	<i>Viola purpurea</i> ssp. <i>quercetorum</i>	Violaceae	

Table C-4. Wildlife Species Observed (March 31, May 28, 2016, and May 11, 2017)

Common Name	Scientific Name	Family	Notes
coast horned lizard	<i>Phrynosoma blainvillii</i>	Phrynosomatidae	CA Species of Special Concern; one found in scrub along Oak Shores Drive
western fence lizard	<i>Sceloporus occidentalis</i>	Phrynosomatidae	
side-blotched lizard	<i>Uta stansburiana</i>	Phrynosomatidae	
red-winged blackbird	<i>Agelaius phoeniceus</i>	Icteridae	
western scrub jay	<i>Aphelocoma californica</i>	Corvidae	
red-tailed hawk	<i>Buteo jamaicensis</i>	Accipitridae	
California quail	<i>Callipepla californica</i>	Odontophoridae	
hairy woodpecker	<i>Leuconotopicus villosus</i>	Picidae	
yellow-billed magpie	<i>Pica nuttalli</i>	Corvidae	
black phoebe	<i>Sayornis nigricans</i>	Tyrannidae	
western bluebird	<i>Sialia mexicana</i>	Turdidae	
European starling	<i>Sturnus vulgaris</i>	Sturnidae	
mourning dove	<i>Zenaida macroura</i>	Columbidae	
California ground squirrel	<i>Otospermophilus beecheyi</i>	Sciuridae	
mule deer	<i>Odocoileus hemionus</i>	Cervidae	
acorn woodpecker	<i>Melanerpes formicivoru</i>	Picidae	Observed May 2017
oak titmouse	<i>Baeolophus inornatus</i>	Paridae	Observed May 2017
Anna's hummingbird	<i>Calypte anna</i>	Trochilidae	Observed May 2017
bush tit	<i>Psaltriparus minimus</i>	Aegithalidae	Observed May 2017
red-shouldered hawk	<i>Buteo lineatus</i>	Accipitridae	Observed May 2017
American crow	<i>Corvus brachyrhynchos</i>	Corvidae	Observed May 2017
turkey vulture	<i>Cathartes aura</i>	Cathartidae	Observed May 2017
brush rabbit	<i>Sylvilagus bachmani</i>	Leporidae	Observed May 2017

APPENDIX D

Wastewater System Capacity Studies

Wastewater System Capacity Study Addendum No. 1

for

San Luis Obispo County
Service Area 7-A (Oak Shores)

January 26, 2015

Prepared by:



WALLACE GROUP

612 Clarion Court
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TABLE OF CONTENTS

CHAPTER 1. PROJECT DESCRIPTION

- 1.1 Background and Introduction
- 1.2 Land Use and Proposed Development
- 1.3 Tract 2162

CHAPTER 2. OAK SHORES WASTEWATER DISPOSAL

- 2.1 General
- 2.2 Existing Disposal System
- 2.3 Potential Disposal System Upgrades
- 2.4 Water Balance and Methodology
- 2.5 Water Balance Results

CHAPTER 3. CONCLUSIONS AND RECOMMENDATIONS

TABLE OF FIGURES

- Figure 2-1. Existing Disposal System Facilities
- Figure 2-2. Gregg Ranch Spray Field and Storage Pond
- Figure 2-3. Proposed Disposal System

TABLE OF TABLES

- Table 1-1. Tract 2162 Project Phasing
- Table 1-2. Average Daily Flow (40% Occupancy)
- Table 2-1. Summary of Existing Wastewater Facilities Contributing to Water Balance
- Table 2-2. Actual vs. Required Infiltration Rate and New Spray field Area

CHAPTER 1: PROJECT DESCRIPTION

1.1 Background and Introduction

The County of San Luis Obispo provides wastewater collection, treatment, and disposal services to the community of Oak Shores through County Service Area No. 7A (CSA-7A). The existing service area includes 583 existing homes and 329 vacant parcels that are authorized to connect to the wastewater system. A significant amount of additional development is pending in the Oak Shores area, as outlined in several previous studies.

Wallace Group has been retained by the prospective owner of Tract 2162 to prepare this Wastewater System Capacity Study – Addendum No. 1 (Addendum) to address the specific needs of Phases 2 through 6 of Tract 2162 in the Oak Shores area. This Study will be an addendum to the Environmental Impact Report (CSA-7A EIR) prepared by the County Service Area 7 Wastewater Treatment Plant Upgrade Project, dated October 2007, and a previous study titled “CSA-7A Wastewater System Capacity Study Interim Report” (Interim Report) by Wallace Group, dated March 2006. This Addendum also references the Supplemental Environmental Impact Report for Oak Shores II – Tract 2162 (Tract 2162 EIR), dated April 1996.

Following Board approval of the CSA-7A EIR, a neighboring property owner filed a CEQA challenge against the proposed wastewater upgrade project, with the intent of compelling the selection of an alternative to the Kavanaugh percolation ponds. The project was put on hold when the developer was unable to fund the cost to defend the CEQA challenge. This Addendum has been prepared to describe an alternative disposal site that has sufficient land area, acceptable soil and groundwater conditions, and reasonable proximity to the existing disposal facilities. This report also addresses the general wastewater system upgrades necessary for full build-out of the Oak Shores community.

Unless modified in this Addendum, the background information, such as flow, collection system, and general wastewater treatment, is to be referenced back to the CSA-7A EIR and Interim Report. Some sections of the previous reports are summarized here for clarity.

1.2 Land Use and Proposed Development

CSA-7A is within the Nacimiento Planning Area, therefore the County Land Use Element, the Nacimiento Area Plan, and the standards in Chapter 22.102 serve as the specific plan for the development of Oak Shores. The maximum number of dwelling units within the Oak Shores village reserve line is 1,786, including RV sites.

Tract 2162 is an approved phased tentative map with a remaining entitlement of 285 lots contained in five phases (Phases 2 through 6). Prior to the recordation of the Tract 2162 lots, a final will-serve commitment from CSA-7A must be obtained. There are a number of other proposed developments that are ready to begin the Tentative Map process, which will also require the issuance of a preliminary will-serve commitment from CSA-7A.

The CSA-7A wastewater system is regulated by the Regional Water Quality Control Board (RWQCB) under Waste Discharge Requirements (WDR) Order No. 01-130. Given that a new disposal site is proposed, new Waste Discharge Requirements are anticipated. The design of the new facilities will incorporate requirements set forth in the anticipated new WDR. If portions of the new disposal site are utilized for the application of secondary, undisinfectated recycled water applied at agronomic rates, the new discharge may also be eligible for coverage under Water Quality Order 2014-0090 – General Waste Discharge Requirements for Recycled Water Use.

1.3 Tract 2162

Tract 2162 is within the east neighborhood of the Oak Shores Development and is known as Oak Shores II. The proposed Tract 2162 is essentially the same as Tract 1291, as modified in the 1986 EIR addendum to the Oak Shores II EIR from 1984. The 400 acre project site is proposed for subdivision into 368 residential parcels. The phasing plan for Tract 2162 is outlined in Table 1. Phase 1 of the project is already constructed, as well as the roads for Phase 2. Wastewater from Phase 1 of Tract 2162 is currently sent to the CSA-7A WWTP, per the CSA-7A EIR.

Table 1-1. Tract 2162 Project Phasing		
Phase	Lots	Status
1	44	Constructed
2	67	Roads only
3	91	Not developed
4	43	Not developed
5	66	Not developed
6	57	Not developed

1.4 Wastewater Flows

Wastewater flow characteristics in the Oak Shores community have been the subject of several past technical reports, and final, peer-reviewed values were summarized in the Interim Report as restated below. The community consists of primarily vacation homes, with a permanent full-time occupancy estimated to be around 30%. Approved flow factors are outlined below:

- Design average annual flow per unit varies with full-time occupancy levels. The assumed design flow is 128 gpd/unit, based on a future assumed full-time occupancy of 40%.
- Average flow during the maximum month (ADMMF) is estimated to be 162 gpd/unit.
- Peak Day Dry Weather flow is estimated to be 352 gpd/unit.

- Peak Hour Flow is estimated to be 0.45 gallons per minute per unit.

Table 1-2. Average Daily Flow (40% Occupancy)			
Development Entity	Number of Units	Cumulative Units	Design Average Flow (0.143 AF/unit)
Existing CSA-7A Dwellings	583	583	83 ac-ft/yr (74,400 gpd)
Future CSA-7A Dwellings	269	852	122 ac-ft/yr (108,800 gpd)
Tract 2162 Phase 1	60	912	130 ac-ft/yr (116,400 gpd)
Tract 2162 Phases 2-6	285	1197	171 ac-ft/yr (152,800 gpd)
Bean/Lynch Canyon (Hughes) Tract 2520	307	1504	215 ac-ft/yr (192,000 gpd)
Munari	134	1638	234 ac-ft/yr (209,100 gpd)
Vaughn/Taylor/Crawford	25	1663	238 ac-ft/yr (212,300 gpd)
Lynch Canyon Properties (Hughes)	50	1713	254 ac-ft/yr (218,700 gpd)

CHAPTER 2. OAK SHORES DISPOSAL SYSTEM

2.1 General

The current WDR states that “Daily flow averaged over each month shall not exceed 100,000 gallons” which suggests that the current permitted capacity of the CSA-7A Wastewater Treatment Plant (WWTP) is dictated by the amount of effluent discharged in any one month. Revisions to WDR 01-130 will be required to provide for full development of the projects contemplated within the CSA-7A service area.

2.2 Existing Disposal System

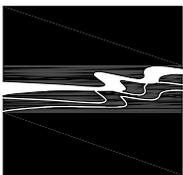
A summary of the existing disposal capacity is outlined in Table 2-1 and a map of the facilities is shown in Figure 2-1. The existing disposal system includes spray fields and spray field ponds. The Kavanaugh percolation ponds have a total disposal capacity of 162 AFY, which corresponds to 1412 units at the design flow rate of 128 gpd/unit. The use of the Kavanaugh Percolation Ponds was the primary contention raised in the CEQA challenged following Board action on the CSA-7A EIR. A hydrogeologic investigation of the Kavanaugh site was performed by Cleath and Associates in February 2006. Findings from the investigation show the ponds have sufficient hydraulic capacity to serve the CSA-7A WWTP, however the proposed site is not ideal from the perspective of continuing legal challenges, both in the CEQA phase and in the subject discharge permit phase.

The existing spray field includes two storage ponds where treated effluent is pumped from the treatment plant and stored before being discharged to the spray field area adjacent to the ponds. The spray fields have a disposal capacity of 44 AFY, which corresponds to 279 units at the design flow rate of 128 gpd/unit.

Area	Size or Capacity	Disposal Potential (# units at 40% occupancy)
WWTP Ponds Catchment	1.0 acre surface area	N/A
Existing Spray Field Disposal	1.3 acres 44 AFY disposal capacity ¹	279
Existing Spray Field Ponds	1.4 acre surface area	N/A
Kavanaugh Perc Ponds Disposal	1.90 acre buildout size (existing 0.78 acres) 162 AFY disposal capacity ²	1,412
Total Existing Disposal Capacity		1,691

¹Existing spray field infiltration Rate = 0.085 ft/day. Source: *Capacity and Demand Report CSA-7A Wastewater Treatment Plant and Disposal Facilities*, Garing Taylor & Associates, dated October 2005 (page 21).

²Kavanaugh Perc Ponds design percolation rate = 0.8 ft/day, Cleath and Associates, February 2006.



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**OAK SHORES TRACT 2162
WASTEWATER TREATMENT AND DISPOSAL SYSTEM
EXISTING DISPOSAL SYSTEM FACILITIES
FIGURE 2-1**

JOB No. : 1216-001

DRAWN BY: SJ

DATE : 5/30/14

SCALE : 1" = 1000'

2.3 Potential Disposal System Upgrades

Given that expansion or upgrades to the Kavanaugh percolation ponds may present difficult legal and permitting obstacles, the options for future upgrades to the disposal system include eliminating the use of the Kavanaugh ponds or restricting their use to current flows and County practices, thus not requiring an expansion at the site. As outlined in Table 2-1, the existing system relies heavily on the disposal capacity of the ponds for the majority of the CSA-7A wastewater disposal and should not be eliminated. Therefore, additional disposal areas that could replace or supplement the Kavanaugh ponds for future development have been considered.

The Gregg Ranch is a 160 acre parcel in the central Oak Shores area that has been considered for additional spray field disposal. The Gregg Ranch has been purchased by the prospective owner of Tract 2162. Prior to the purchase, the Gregg Ranch was assessed as a potential location for additional spray fields for the CSA-7A disposal system. The soils evaluation and infiltration tests performed by Earth Systems Pacific on April 1, 2014 are provided in Attachment A. Figure 2-2 is a map of the Gregg Ranch property with the locations of the test pits identified. In summary, the areas identified as ideal for spray field disposal exhibited similar characteristics across the property, with an average infiltration rate of 12 minutes per inch. This soils result, coupled with the flat terrain and sparsely wooded landscape, make the property a strong candidate for long term disposal.

2.4 Water Balance and Methodology

A water balance was performed to determine the approximate spray field size that would be required given the anticipated wastewater flows from Tract 2162. One key factor is the allowable deep percolation of effluent, which is often calculated as a percentage of the average infiltration rate (12 minutes per inch). Two water balance scenarios were evaluated as follows:

- Existing entitled development + Phases 2-6 of Tract 2162
- Build out of the Oak Shore village

The proposed spray field area on the Gregg Ranch would also include area for a lined effluent storage pond to attenuate the peak flow and provide a local source for spray field application. A copy of the water balance for each scenario can be found in Attachment B.

It was assumed that the existing spray fields and Kavanaugh ponds would remain in service for the CSA-7A system as these facilities provide flexibility and redundancy to the disposal facilities for emergency conditions and disposal of existing flows. To reduce the dependency on the Kavanaugh ponds and to ensure that the future disposal facilities are capable of meeting future wastewater flows, the disposal capacity of the Kavanaugh ponds and the existing 1.3 acres of spray fields was not incorporated into the current water balance scenarios.

The water balance methodology used for the previous CSA-7A Wastewater System Capacity Study Interim Report was adopted by this report. Input variables such as per-unit flow rates, precipitation, evaporation, and existing spray field capacity, were pulled directly from the previous reports. Detailed

information on the input variables used in this water balance can also be found with the spreadsheets in attachment B. A basic equation for analyzing the potential spray field area and associated storage requirements can be summarized as follows:

$$\text{FLOW}_{\text{in}} = \text{FLOW}_{\text{out}} + \text{STORAGE}$$

FLOW_{in} – is comprised of (1) ADMMF wastewater flows, and (2) precipitation falling into the storage ponds

FLOW_{out} – is comprised of (1) evapotranspiration at the spray field (2) deep percolation at the spray field, and (3) evaporative losses from the surfaces of the storage ponds

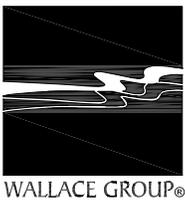
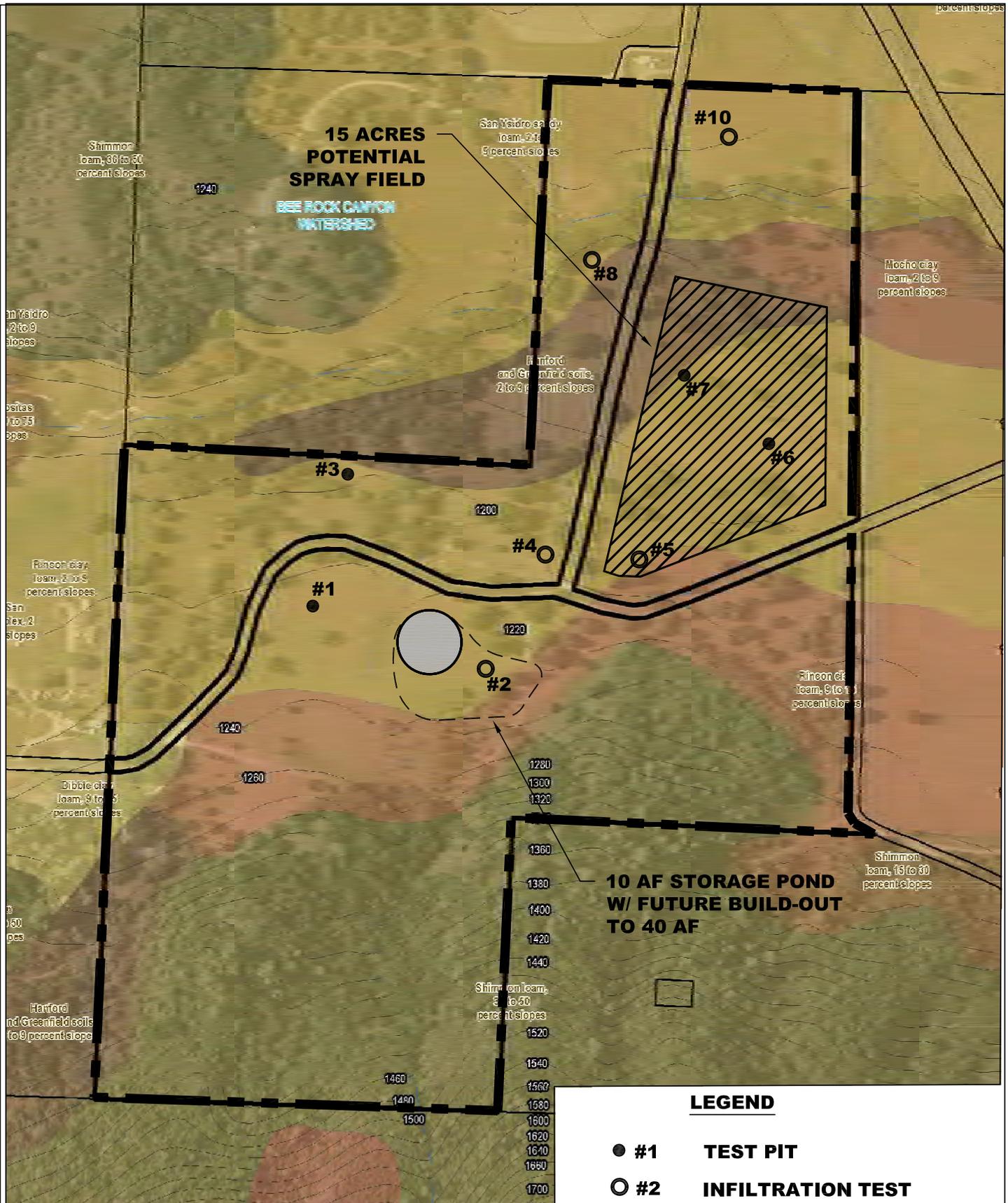
Of the 160 acres provided by the Gregg Ranch property, approximately 40 acres have been identified as available for a potential spray field use. The remaining 120 acres have steep slopes or are covered with vegetation.

2.5 Water Balance Results

The infiltration rates tested at the Gregg Ranch property support the use of percolation ponds with a small footprint. However, in order to remain conservative and to facilitate permitting, a spray field with some component of deep percolation has been used. In order to account for field rotation and variations in soils conditions, a 15 acre spray field is recommended. The spray field is to be bermed to prevent runoff from leaving the site as well as allowing runoff from offsite to enter and therefore only rain that falls on the site is included in the water balance. A summary of key water balance factors is included below:

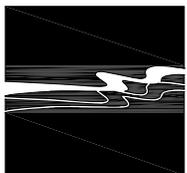
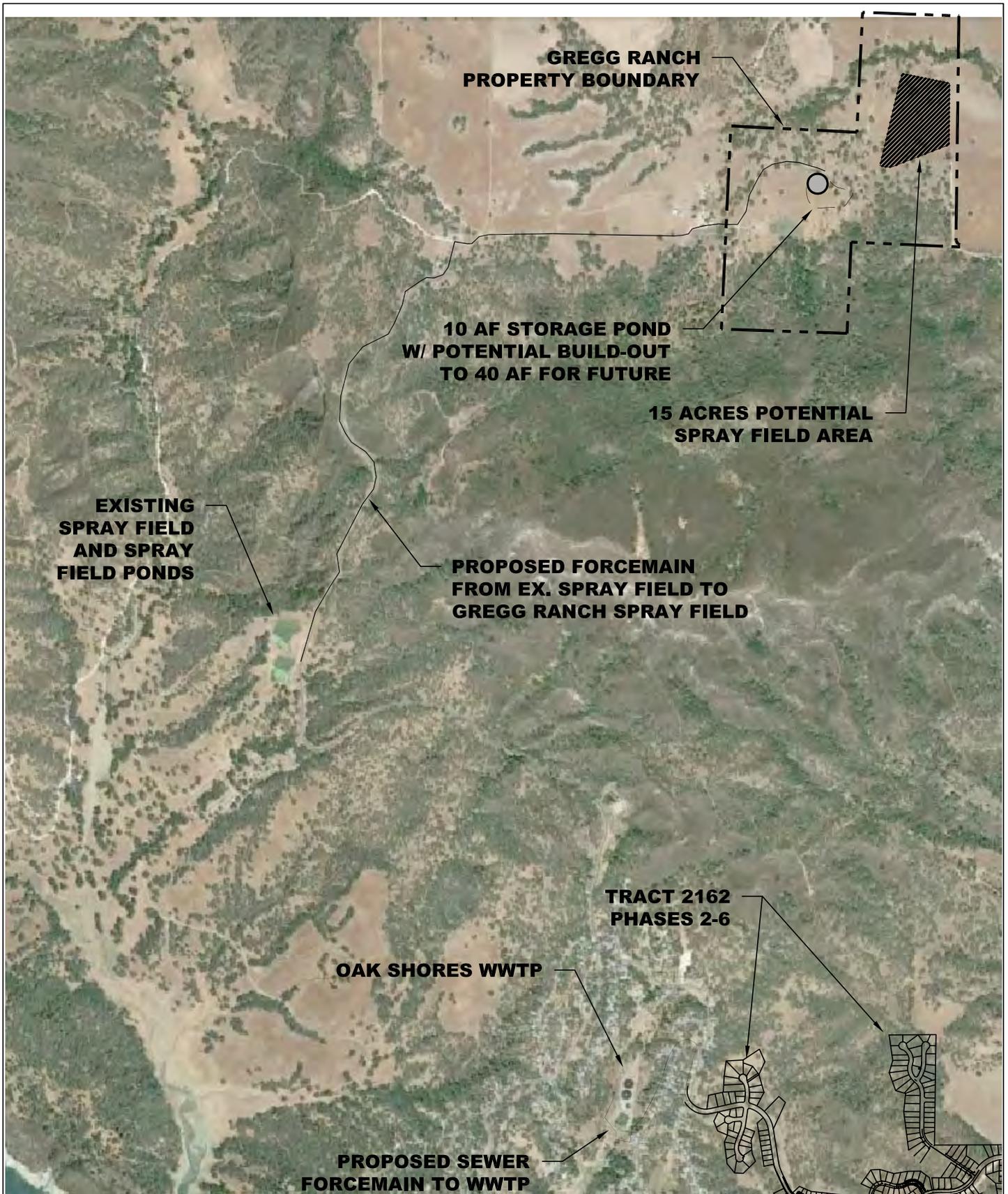
# Connections	Annual WW Flow (ac-ft)	Total Precip. (ac-ft)	Total Spray ETo (ac-ft)	Net Pond Evap (ac-ft)	Required Min Deep Perc (ac-ft)	Cumulative Storage Req. (ac-ft)
1197 (Tract 2162 only)	171.58	14.04	48.78	9.90	126.94	0
1713 (Build-out)	245.55	14.04	48.78	9.90	201.72	0

As discussed in Section 2.4, new lined storage ponds should also be provided at the site of the new spray fields to attenuate peak flows and provide a local source for spray field application. Typically, design of disposal storage ponds includes capacity for 60 to 90 days of average wastewater flow. Using the Tract 2162 rainy season average flow values from the water balance (January-March), this equates to a required storage capacity of 40.96 acre-feet. Tract 2162 wastewater flow is 24% of the total Oak Shores wastewater flow (285 units / 1197 units); therefore 24% of the total storage required was calculated at 10 acre-feet (0.24*40.96) for Phases 2 through 6 of Tract 2162. The build out storage requirements is estimated at 60 days of winter-season flow or 41.5 acre-feet.



OAK SHORES TRACT 2162
WASTEWATER TREATMENT AND DISPOSAL SYSTEM
GREGG RANCH SPRAY FIELD AND STORAGE POND
FIGURE 2-2

JOB No. :	1216-001
DRAWN BY:	SJ
DATE :	6/2/14
SCALE :	N.T.S



WALLACE GROUP®

**OAK SHORES TRACT 2162
WASTEWATER TREATMENT AND DISPOSAL SYSTEM
PROPOSED DISPOSAL SYSTEM
WITH EXISTING FACILITIES
FIGURE 2-3**

JOB No. : 1216-001

DRAWN BY: SJ

DATE: 5/30/14

SCALE: 1" = 1000'

Table 2-3 is a summary of the water balance results compared to typical required values for wastewater disposal. Note that the infiltration needed for Buildout is less than 10% of what is available on the 15-acre spray field.

Table 2-3. Actual vs. Required Infiltration Rate and New Spray field Area	
Recorded Infiltration Rate	10 ft/day
Recommended maximum application rate (5% of recorded rate) ²	0.5 ft/day
Assumed Spray field Area	15 Acres
Infiltration Needed for Tract 2162 – Phases 2 through 6 ¹	0.02 ft/day << 0.5 ft/day
Infiltration Needed for Buildout ¹	0.03 ft/day << 0.5 ft/day
Recommended Storage for Tract 2162 (90 days)	10 acre-feet
Recommended Storage for Build-out (60 days)	40 acre-feet

¹Assuming 15 acres spray field area

²0.5 ft/day correlates to 5% of the recorded rate, which is the maximum amount of deep percolation that can be allowed and still avoid nuisance conditions such as periodic ponding and runoff.

CHAPTER 3. CONCLUSIONS AND RECOMMENDATIONS

The recommended disposal system includes the following elements:

- Construct a new 15 acre spray field on the Gregg Ranch Property
- Construct a 10 AF storage pond on Gregg Ranch Property to serve Tract 2162 (build-out of Oak Shores would require additional 27.5 AF of storage pond capacity)
- Construct a new booster pump station and 2 mile force main from the existing spray field to the Gregg Ranch spray field
- Maintain the existing spray field storage pond and existing spray field
- Restrict use of the Kavanaugh percolation ponds for wastewater disposal to existing uses and emergencies

Attachment A – Soils Evaluation of Gregg Ranch



April 9, 2014

FILE NO.: SL-17288-SA

Mr. Rob Miller, PE
Wallace Group
612 Clarion Court
San Luis Obispo, CA 93401

PROJECT: TRACT 2162 – OAK SHORES
WASTEWATER DISPOSAL AREA – APN NO. 080-021-005
OAK SHORES AREA OF SAN LUIS OBISPO COUNTY, CALIFORNIA

SUBJECT: Results of Percolation Testing and Subsurface Exploration

REF.: Terms of Agreement Between The Design Professional and Sub-
Consultant, Project Description: Oak Shores TR 2162 Geotechnical
Services, by Wallace Group, dated March 28, 2014

Dear Mr. Miller:

Per your authorization of the above referenced terms of agreement, we present herein the results of the percolation testing performed at the proposed wastewater disposal site in the Oak Shores area of San Luis Obispo County, California.

On April 1 and 2, 2014, a total of ten exploratory test pits were excavated for the purpose of documenting the existing subsurface conditions. Of the ten tests pits excavated, a total of six were tested to evaluate the percolation potential of the site soils. The exploratory test pits were excavated to depths between 3.5 and 10 feet below existing grade. A backhoe, equipped with a 24-inch digging bucket was used to excavate all of the test pits. The percolation tests were excavated separately, in the near vicinity of the selected test pit locations. The approximate locations of the exploratory test pits and percolation test locations are shown on the attached Test Pit and Percolation Test Location Map. Soils encountered in the test pits were categorized and logged in general accordance with the Unified Soil Classification System and ASTM D 2488-09a. Where bedrock was encountered, its properties were described based upon observation of the spoils and the effort required to excavate into the bedrock.

The logs of the exploratory test pits are also attached, along with a test pit log legend. In reviewing the test pit logs and legend, the reader should recognize that the legend is intended as a guideline only, and there are a number of conditions that may influence the soil characteristics as observed during excavation. These include, but are not limited to, the presence of cobbles or boulders, cementation, variations in soil moisture, presence of groundwater, and other factors. Consequently, the logger must exercise judgment in interpreting soil characteristics, possibly resulting in soil or bedrock descriptions that vary somewhat from the legend. It should be noted that descriptions of the properties of bedrock must span a much wider range than those of soil. As a result, very soft bedrock may be harder than very dense sand or hard clay. The legend takes these differences into account.



Subsurface conditions encountered in the exploratory test pits generally consisted of alluvium material underlain by bedrock. The alluvium consisted of loose to medium dense poorly graded sand. In Test Pit No. 10, sandy lean clay alluvial deposits were encountered at a depth of approximately 1.5 feet below existing grade. Underlying the alluvium, sandstone bedrock the Vaqueros Formation was encountered. The bedrock was logged as soft to moderately hard. Free subsurface water was not encountered in any of the exploratory test pits.

After determining the locations where percolation testing was to be performed, a small area adjacent to each of the selected test pits was excavated approximately 18 inches below existing grade. A 12-inch square, approximately 12 inches deep, test hole was then hand dug at the bottom of each of the test excavations. Percolation testing initially consisted of filling each of the 12-inch square test holes with water and allowing it to soak for a period of approximately 24 hours. After this initial soak period, the 12-inch square test holes were refilled and then monitored by measuring the falling head over time.

The tests produced somewhat variable results in the six test locations. Generally, the percolation rates ranged from 0.67 to 92 minutes per inch; however, Test Pit No. 10 yielded percolation rates between 476 to 484 minutes per inch. As mentioned above, sandy lean clay was encountered within Test Pit No. 10 and is likely the reason for the reduced percolation rate. The percolation test results are attached.

The test results indicate only the percolation rates at the specific location and under specific conditions. Sound engineering judgment should be exercised in extrapolating the test results for other conditions or locations. Compaction of the soil in the disposal area and surface runoff are factors (among others) which may affect the performance of the disposal area. It is incumbent upon the design engineer, the contractor, and the user to capitalize upon, and preserve, the site's natural percolation potential.

We appreciate the opportunity to have provided professional services for this project and look forward to working with you again in the future. If there are any questions concerning this letter, please do not hesitate to contact the undersigned.

Sincerely,

Earth Systems Pacific


Kyle Martinez, PE
Project Engineer
4/9/14



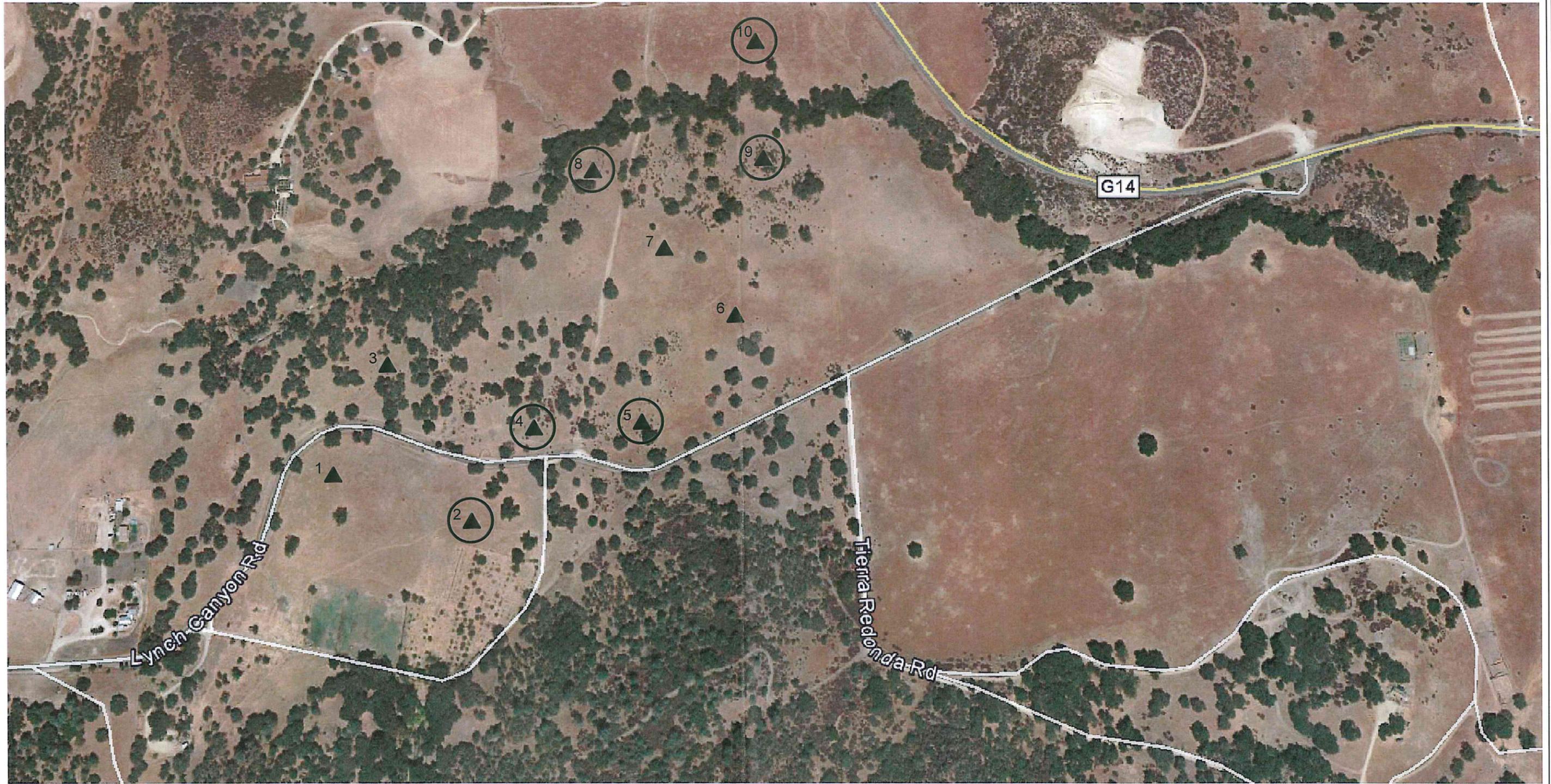

Dennis Shallenberger, GE
Principal Engineer
4/9/14



Attachments: Test Pit and Percolation Test Location Map (1 sheet)
Test Pit Log Legend (1 Page)
Test Pit Logs (10 pages)
Percolation Test Results (6 pages)

Doc. No.: 1404-034.LTR/tf

TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA-040814TestPits/Percs



Base Map Image Taken from Google Earth, 2014

LEGEND

- ▲ 10 Test Pit Location (Approx.)
- ▲ 10 Percolation Test Location (Approx.)



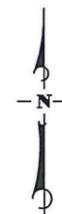
Earth Systems Pacific

April 8, 2014

QF

NOT TO SCALE

4378 Old Santa Fe Road
 San Luis Obispo, CA 93401-8116
 (805) 544-3276 • FAX (805) 544-1786
 E-mail: esp@earthsys.com
 SL-17288-SA



TEST PIT AND PERCOLATION TEST LOCATION MAP

**TRACT 2162 - OAK SHORES
 WASTEWATER DISPOSAL AREA**
 Oak Shores Area of
 San Luis Obispo County, California



Earth Systems Pacific

TEST PIT LOG LEGEND

SOIL CLASSIFICATION SYSTEM

SAMPLE / SUBSURFACE WATER SYMBOLS		GRAPH. SYMBOL	MAJOR DIVISIONS	GROUP SYMBOL	TYPICAL DESCRIPTIONS	GRAPH. SYMBOL
CALIFORNIA MODIFIED (OD = 3.0", ID = 2.5")		■	COARSE GRAINED SOILS MORE THAN HALF OF MATERIAL IS TESTED OR JUDGED TO BE LARGER THAN #200 SIEVE SIZE	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
STANDARD PENETRATION TEST (SPT) (OD = 2.0", ID = 1.5")		●		GP	POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	
SHELBY TUBE		□		GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, NON-PLASTIC FINES	
BULK		○		GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, PLASTIC FINES	
SUBSURFACE WATER DURING DRILLING		▽		SW	WELL GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
SUBSURFACE WATER AFTER DRILLING		▽		SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	
				SM	SILTY SANDS, SAND-SILT MIXTURES, NON-PLASTIC FINES	
				SC	CLAYEY SANDS, SAND-CLAY MIXTURES, PLASTIC FINES	
			FINE GRAINED SOILS HALF OR MORE OF MATERIAL IS TESTED OR JUDGED TO BE SMALLER THAN #200 SIEVE SIZE	ML	INORGANIC SILTS AND VERY FINE SANDS, SILTY, CLAYEY FINE SANDS, CLAYEY SILTS WITH SLIGHT PLASTICITY	
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
				MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY, SILTY SOILS, ELASTIC SILTS	
				CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
				PT	PEAT AND OTHER HIGHLY ORGANIC SOILS	

OBSERVED MOISTURE CONDITION

DRY	SLIGHTLY MOIST	MOIST	VERY MOIST	WET
LITTLE/NO MOISTURE	JUDGED BELOW OPTIMUM	JUDGED ABOUT OPTIMUM	JUDGED OVER OPTIMUM	SATURATED

TYPICAL CONSISTENCY

COARSE GRAINED SOILS			FINE GRAINED SOILS		
BLOWS/FOOT		DESCRIPTIVE TERM	BLOWS/FOOT		DESCRIPTIVE TERM
SPT	CA SAMPLER		SPT	CA SAMPLER	
0-10	0-16	LOOSE	0-2	0-3	VERY SOFT
11-30	17-50	MEDIUM DENSE	3-4	4-7	SOFT
31-50	51-83	DENSE	5-8	8-13	MEDIUM STIFF
OVER 50	OVER 83	VERY DENSE	9-15	14-25	STIFF
			16-30	26-50	VERY STIFF
			OVER 30	OVER 50	HARD

GRAIN SIZES

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENING			
# 200	# 40	# 10	# 4	3/4"	3"	12"	
SILT & CLAY	SAND			GRAVEL		COBBLES	BOULDERS
	FINE	MEDIUM	COARSE	FINE	COARSE		

TYPICAL ROCK HARDNESS

MAJOR DIVISIONS	TYPICAL DESCRIPTIONS
EXTREMELY HARD	CORE, FRAGMENT, OR EXPOSURE CANNOT BE SCRATCHED WITH KNIFE OR SHARP PICK; CAN ONLY BE CHIPPED WITH REPEATED HEAVY HAMMER BLOWS
VERY HARD	CANNOT BE SCRATCHED WITH KNIFE OR SHARP PICK; CORE OR FRAGMENT BREAKS WITH REPEATED HEAVY HAMMER BLOWS
HARD	CAN BE SCRATCHED WITH KNIFE OR SHARP PICK WITH DIFFICULTY (HEAVY PRESSURE); HEAVY HAMMER BLOW REQUIRED TO BREAK SPECIMEN
MODERATELY HARD	CAN BE GROOVED 1/16 INCH DEEP BY KNIFE OR SHARP PICK WITH MODERATE OR HEAVY PRESSURE; CORE OR FRAGMENT BREAKS WITH LIGHT HAMMER BLOW OR HEAVY MANUAL PRESSURE
SOFT	CAN BE GROOVED OR GOUGED EASILY BY KNIFE OR SHARP PICK WITH LIGHT PRESSURE, CAN BE SCRATCHED WITH FINGERNAIL; BREAKS WITH LIGHT TO MODERATE MANUAL PRESSURE
VERY SOFT	CAN BE READILY INDENTED, GROOVED OR GOUGED WITH FINGERNAIL, OR CARVED WITH KNIFE; BREAKS WITH LIGHT MANUAL PRESSURE

TYPICAL ROCK WEATHERING

MAJOR DIVISIONS	TYPICAL DESCRIPTIONS
FRESH	NO DISCOLORATION, NOT OXIDIZED
SLIGHTLY WEATHERED	DISCOLORATION OR OXIDATION IS LIMITED TO SURFACE OF, OR SHORT DISTANCE FROM; SOME FRACTURES PRESENT; FELDSPAR CRYSTALS ARE DULL
MODERATELY WEATHERED	DISCOLORATION OR OXIDATION EXTENDS FROM FRACTURES, USUALLY THROUGHOUT; Fe-Mg MINERALS ARE "RUSTY"; FELDSPAR CRYSTALS ARE "CLOUDY"
INTENSELY WEATHERED	DISCOLORATION OR OXIDATION THROUGHOUT; FELDSPAR AND Fe-Mg MINERALS ARE ALTERED TO CLAY TO SOME EXTENT OR CHEMICAL ALTERATION PRODUCES IN SITU DISAGGREGATION
DECOMPOSED	DISCOLORATION OR OXIDATION THROUGHOUT, BUT RESISTANT MINERALS SUCH AS QUARTZ MAY BE UNALTERED; FELDSPAR AND Fe-Mg MINERALS ARE COMPLETELY ALTERED TO CLAY



LOGGED BY: K. Martinez
 DRILL RIG: Backhoe
 AUGER TYPE: 24" Bucket

PAGE 1 OF 1
 JOB NO.: SL-17288-SA
 DATE: 04/02/14

DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California				
			SAMPLE DATA				
SOIL DESCRIPTION			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SP	POORLY GRADED SAND: dark brown, loose, moist (Alluvium)					
1							
2		brown					
3		orange brown, medium dense					
4							
5		SANDSTONE: pale brown/light gray mottled, soft, slightly moist, moderately weathered (Vaqueros Formation)					
6		Bottom of Trench @ 5.0'					
7		No subsurface water encountered					
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



LOGGED BY: K. Martinez
 DRILL RIG: Backhoe
 AUGER TYPE: 24" Bucket

PAGE 1 OF 1
 JOB NO.: SL-17288-SA
 DATE: 04/01/14

DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California					
			SOIL DESCRIPTION	INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SP		POORLY GRADED SAND: dark brown, loose, moist (Alluvium)					
1								
2								
3			orange brown					
4								
5								
6								
7								
8			SANDSTONE: pale brown/light gray mottled, soft, slightly moist, moderately weathered (Vaqueros Formation)					
9								
10			Bottom of Trench @ 8.5'					
11			No subsurface water encountered					
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



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PAGE 1 OF 1
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 DATE: 04/01/14

DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California				
			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
			SOIL DESCRIPTION				
0	SP		POORLY GRADED SAND: dark brown, loose, moist, trace silt (Alluvium)				
1							
2			SANDSTONE: pale brown/light gray mottled, soft, slightly moist, intensely weathered (Vaqueros Formation)				
3							
4			moderately weathered				
5			Bottom of Trench @ 5.0'				
6			No subsurface water encountered				
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



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DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California				
			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
			SOIL DESCRIPTION				
0	SP		POORLY GRADED SAND: dark brown, loose, moist (Alluvium)				
1			brown				
2			-----				
3			SANDSTONE: pale brown/light gray mottled, soft, slightly moist, moderately weathered (Vaqueros Formation)				
4			Bottom of Trench @ 3.5'				
5			No subsurface water encountered				
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT

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LOGGED BY: K. Martinez
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PAGE 1 OF 1
 JOB NO.: SL-17288-SA
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DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California				
			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
SOIL DESCRIPTION							
0	SP		POORLY GRADED SAND: dark brown, loose, moist (Alluvium)				
1							
2			----- brown, moist				
3							
4		----- orange brown, medium dense					
5							
6							
7							
8							
9							
10			SANDSTONE: pale brown/light gray mottled, soft, slightly moist, moderately weathered (Vaqueros Formation)				
11			Bottom of Trench @ 10.0'				
12			No subsurface water encountered				
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT
 NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



LOGGED BY: K. Martinez
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PAGE 1 OF 1
 JOB NO.: SL-17288-SA
 DATE: 04/01/14

DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California				
			SAMPLE DATA				
SOIL DESCRIPTION			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
0	SP		POORLY GRADED SAND: brown, loose, moist (Alluvium)				
1			orange brown				
2							
3							
4			SANDSTONE: pale brown/light gray mottled, soft, slightly moist, intensely weathered (Vaqueros Formation)				
5			moderately weathered				
6							
7			Bottom of Trench @ 5.5'				
8			No subsurface water encountered				
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



LOGGED BY: K. Martinez

DRILL RIG: Backhoe

AUGER TYPE: 24" Bucket

JOB NO.: SL-17288-SA

DATE: 04/01/14

DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California				
			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
SOIL DESCRIPTION							
0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 -	SP	<p>POORLY GRADED SAND: brown, loose, moist, trace silt (Alluvium)</p> <p>SANDSTONE: pale brown/light gray mottled, soft, slightly moist, intensely weathered (Vaqueros Formation)</p> <p>moderately weathered</p> <p>Bottom of Trench @ 5.0'</p> <p>No subsurface water encountered</p>					

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



LOGGED BY: K. Martinez

PAGE 1 OF 1

DRILL RIG: Backhoe

JOB NO.: SL-17288-SA

AUGER TYPE: 24" Bucket

DATE: 04/01/14

DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California				
			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
SOIL DESCRIPTION							
0	SP						
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



LOGGED BY: K. Martinez
 DRILL RIG: Backhoe
 AUGER TYPE: 24" Bucket

PAGE 1 OF 1
 JOB NO.: SL-17288-SA
 DATE: 04/01/14

DEPTH (feet)	USCS CLASS	SYMBOL	SAMPLE DATA				
			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California							
SOIL DESCRIPTION							
0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10 - 11 - 12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 -	SP	<p>POORLY GRADED SAND: brown, loose, moist, trace silt (Alluvium)</p> <p>SANDSTONE: pale brown/light gray mottled, soft, slightly moist, moderately weathered (Vaqueros Formation)</p> <p>moderately hard, slightly weathered</p> <p>Bottom of Trench @ 5.0'</p> <p>No subsurface water encountered</p>					

LEGEND: ■ Ring Sample ○ Grab Sample □ Shelby Tube Sample ● SPT

NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



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 DRILL RIG: Backhoe
 AUGER TYPE: 24" Bucket

PAGE 1 OF 1
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DEPTH (feet)	USCS CLASS	SYMBOL	TRACT 2162 - OAK SHORES WASTEWATER DISPOSAL AREA Oak Shores Area of San Luis Obispo County, California				
			INTERVAL (feet)	SAMPLE TYPE	DRY DENSITY (pcf)	MOISTURE (%)	BLOWS PER 6 IN.
			SOIL DESCRIPTION				
0	SP						
1							
2	CL						
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

LEGEND: Ring Sample Grab Sample Shelby Tube Sample SPT
 NOTE: This log of subsurface conditions is a simplification of actual conditions encountered. It applies at the location and time of drilling. Subsurface conditions may differ at other locations and times.



Project: Tract 2162 - Oak Shores

SL-17288-SA

PERCOLATION TEST RESULTS

Percolation Test: 2

Test Hole: 12 Inches Square

Date Excavated: 4/2/14

Test Hole Depth: 12 Inches

Date Tested: 4/3/14

Test Duration: 1.13 hours

Technician: DH

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	PERCOLATION RATE (Minutes / Inch)
---	0.25	---	---
1.00	1.00	0.75	1.33
1.00	2.00	1.00	1.00
1.00	3.00	1.00	1.00
1.00	4.00	1.00	1.00
1.00	5.00	1.00	1.00
1.00	6.00	1.00	1.00
1.00	6.50	0.50	2.00
1.00	7.00	0.50	2.00
1.00	7.50	0.50	2.00
1.00	7.75	0.25	4.00
2.00	8.13	0.38	5.33
5.00	9.25	1.13	4.44
5.00	11.50	2.25	2.22
Refill	0.00	---	---
2.00	2.00	2.00	1.00
2.00	4.50	2.50	0.80
2.00	5.75	1.25	1.60
2.00	7.00	1.25	1.60
5.00	8.00	1.00	5.00
5.00	9.13	1.13	4.44
5.00	10.75	1.63	3.08
Refill	1.00	---	---
2.00	2.75	1.75	1.14
2.00	4.50	1.75	1.14
2.00	5.50	1.00	2.00
2.00	6.50	1.00	2.00
10.00	8.75	2.25	4.44
5.00	10.00	1.25	4.00



Project: Tract 2162 - Oak Shores

SL-17288-SA

PERCOLATION TEST RESULTS

Percolation Test: 4

Test Hole: 12 Inches Square

Date Excavated: 4/1/14

Test Hole Depth: 12 Inches

Date Tested: 4/3/14

Test Duration: 1.8 hours

Technician: DH

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	PERCOLATION RATE (Minutes / Inch)
---	0.00	---	---
5.00	1.00	1.00	5.00
6.00	2.25	1.25	4.80
6.00	3.00	0.75	8.00
6.00	3.63	0.63	9.60
5.00	4.50	0.88	5.71
5.00	4.75	0.25	20.00
10.00	5.50	0.75	13.33
5.00	6.00	0.50	10.00
10.00	6.75	0.75	13.33
20.00	7.75	1.00	20.00
10.00	8.25	0.50	20.00
10.00	8.63	0.38	26.67
10.00	9.13	0.50	20.00



Project: Tract 2162 - Oak Shores

SL-17288-SA

PERCOLATION TEST RESULTS

Percolation Test: 5

Test Hole: 12 Inches Square

Date Excavated: 4/1/14

Test Hole Depth: 12 Inches

Date Tested: 4/3/14

Test Duration: 5.2 hours

Technician: DH

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	PERCOLATION RATE (Minutes / Inch)
---	0.75	---	---
5.00	1.25	0.50	10.00
5.00	2.00	0.75	6.67
7.00	2.50	0.50	14.00
13.00	3.25	0.75	17.33
10.00	3.75	0.50	20.00
14.00	4.50	0.75	18.67
15.00	5.00	0.50	30.00
10.00	5.38	0.38	26.67
10.00	5.63	0.25	40.00
20.00	6.00	0.38	53.33
20.00	6.50	0.50	40.00
160.00	8.50	2.00	80.00
23.00	8.75	0.25	92.00



Project: Tract 2162 - Oak Shores

SL-17288-SA

PERCOLATION TEST RESULTS

Percolation Test: 8

Test Hole: 12 Inches Square

Date Excavated: 4/1/14

Test Hole Depth: 12 Inches

Date Tested: 4/3/14

Test Duration: 1.95 hours

Technician: DH

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	PERCOLATION RATE (Minutes / Inch)
---	2.00	---	---
2.00	3.00	1.00	2.00
2.00	4.00	1.00	2.00
2.00	4.50	0.50	4.00
3.00	5.50	1.00	3.00
3.00	6.13	0.63	4.80
5.00	7.00	0.88	5.71
5.00	7.75	0.75	6.67
5.00	8.50	0.75	6.67
5.00	9.25	0.75	6.67
5.00	10.00	0.75	6.67
5.00	10.38	0.38	13.33
5.00	11.00	0.63	8.00
5.00	11.38	0.38	13.33
5.00	11.88	0.50	10.00
Refill	1.75	---	---
5.00	2.75	1.00	5.00
5.00	3.75	1.00	5.00
5.00	4.50	0.75	6.67
5.00	5.25	0.75	6.67
10.00	6.50	1.25	8.00
10.00	7.75	1.25	8.00
10.00	8.88	1.13	8.89
10.00	9.75	0.88	11.43



Project: Tract 2162 - Oak Shores

SL-17288-SA

PERCOLATION TEST RESULTS

Percolation Test: 9

Test Hole: 12 Inches Square

Date Excavated: 4/1/14

Test Hole Depth: 12 Inches

Date Tested: 4/3/14

Test Duration: 0.73 hours

Technician: DH

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	PERCOLATION RATE (Minutes / Inch)
---	3.00	---	---
3.00	7.50	4.50	0.67
2.00	8.50	1.00	2.00
2.00	9.25	0.75	2.67
2.00	10.00	0.75	2.67
2.00	10.38	0.38	5.33
Refill	3.25	---	---
1.00	4.75	1.50	0.67
1.00	6.00	1.25	0.80
1.00	6.50	0.50	2.00
1.00	7.00	0.50	2.00
2.00	7.63	0.63	3.20
2.00	8.25	0.63	3.20
2.00	8.88	0.63	3.20
2.00	9.50	0.63	3.20
2.00	10.00	0.50	4.00
2.00	10.38	0.38	5.33
Refill	2.50	---	---
1.00	3.50	1.00	1.00
1.00	4.50	1.00	1.00
1.00	5.50	1.00	1.00
1.00	6.25	0.75	1.33
1.00	7.00	0.75	1.33
2.00	7.50	0.50	4.00
2.00	8.00	0.50	4.00
2.00	8.75	0.75	2.67
2.00	9.25	0.50	4.00
2.00	10.00	0.75	2.67
2.00	10.38	0.38	5.33



Project: Tract 2162 - Oak Shores

SL-17288-SA

PERCOLATION TEST RESULTS

Percolation Test: 10

Test Hole: 12 Inches Square

Date Excavated: 4/2/14

Test Hole Depth: 12 Inches

Date Tested: 4/3/14

Test Duration: 1.5 hours

Technician: DH

INTERVAL (Minutes)	READING (Inches)	INCREMENTAL FALL (Inches)	PERCOLATION RATE (Minutes / Inch)
---	2.75	---	---
30.00	2.81	0.06	483.87
30.00	2.88	0.06	476.19
30.00	2.94	0.06	483.87

Attachment B – Water Balance Spreadsheets

**WATER BALANCE FOR PROPOSED GREGG RANCH SPARY FIELD
TRACT 2162 PHASES 2-6; 1197 UNITS**

**CSA-7A WASTEWATER SYSTEM CAPACITY STUDY
ADDENDUM**

Assumptions

Areas Contributing to Evapotranspiration

- 1.3 Existing Sprayfield area (ac)
- 15 Proposed Gregg Ranch Sprayfield area (ac)

Areas Contributing to Pond Evaporation

- 1.4 Existing Sprayfield ponds surface area (ac)
- 0.99 WWTP Pond Surface Area (ac)
- 2 Gregg Ranch Pond Surface area (ac)

Areas Contributing Precipitation Runoff

- 3.8 Existing Ponds Catchment Area (ac)
- 1.09 Treatment Plant Catchment (ac) (Ponds +10%)
- 2 Gregg Ranch Storage Ponds (ac)

Deep Perc infiltration rate

- 0.17 Gregg Ranch Spray Field infiltration rate (ft/day)
- 0.09 Existing Spray Field infiltration rate (ft/day)
- 1197 Number of connections
- 40% Full-Time Occupancy

Water Balance

Month	Days per Month	Demand			Precipitation		Evapotranspiration					Evaporation		Deep Percolation		Cumulative Storage (acre-ft)						
		Maximum Monthly Flow per Full-Time Connection (gpd/conn)	Maximum Monthly Flow per Seasonal Connection (gpd/conn)	Combined Maximum Monthly Flow per Connection (gpd/conn)	TWW Flow (gpd)	TWW Flow (gal/month)	TWW Flow (acre-ft)	100-year Monthly Precip (in) ¹	Precip Load (acre-ft)	Pan Evap (in) ³	ETo/ETp Ratio	ETo (in)	Net Eto (in) Eto-Precip	Existing Sprayfield ETo (acre-ft)	New Sprayfield Eto (acre-ft)		Total Sprayfield Eto (acre-ft)	Pond Evap (in)	Pond Evap (acre-ft)	Perc under Existing Spray Fields (acre-ft)	Quantity of WW to be disposed on Gregg Ranch sprayfield (acre-ft)	Required Perc at Gregg Ranch to dispose remaining WW (ft/day)
October	31	162	60.8	101.3	121,232	3,758,197	11.53	1.54	0.88	5.28	0.63	3.33	1.79	0.19	2.23	2.43	3.70	1.35	3.44	5.1994	0.0009	0.00
November	30	162	55.1	97.9	117,138	3,514,153	10.79	3.52	2.02	2.67	0.82	2.19	0.00	0.00	0.00	0.00	1.87	0.68	3.33	8.7932	0.0016	0.00
December	31	162	48.9	94.1	112,686	3,493,253	10.72	8.89	5.10	1.66	0.82	1.36	0.00	0.00	0.00	0.00	1.16	0.43	3.44	11.9600	0.0022	0.00
January	31	162	66.1	104.5	125,039	3,876,197	11.90	9.33	5.36	1.56	0.92	1.44	0.00	0.00	0.00	0.00	1.09	0.40	3.44	13.4135	0.0024	0.00
February	28.25	162	116.0	134.4	160,877	4,544,770	13.95	8.71	5.00	2.12	0.84	1.78	0.00	0.00	0.00	0.00	1.48	0.54	3.14	15.2712	0.0028	0.00
March	31	162	113.2	132.7	158,866	4,924,841	15.11	6.51	3.74	3.76	0.74	2.78	0.00	0.00	0.00	0.00	2.63	0.96	3.44	14.4494	0.0026	0.00
April	30	162	121.0	137.4	164,468	4,934,034	15.14	3.70	2.12	5.68	0.59	3.35	0.00	0.00	0.00	0.00	3.98	1.45	3.33	12.4835	0.0023	0.00
May	31	162	159.1	160.3	191,831	5,946,768	18.25	1.01	0.58	8.06	0.76	6.13	5.12	0.55	6.39	6.95	5.64	2.06	3.44	6.3780	0.0012	0.00
June	30	162	125.4	140.0	167,628	5,028,836	15.43	0.26	0.15	9.92	0.62	6.15	5.89	0.64	7.36	8.00	6.94	2.54	3.33	1.7124	0.0003	0.00
July	31	162	162.0	162.0	193,914	6,011,334	18.45	0.04	0.02	11.32	0.72	8.15	8.11	0.88	10.14	11.02	7.92	2.90	3.44	1.1164	0.0002	0.00
August	31	162	133.6	145.0	173,517	5,379,031	16.51	0.09	0.05	10.42	0.59	6.15	6.06	0.66	7.57	8.23	7.29	2.67	3.44	2.2231	0.0004	0.00
September	30	162	100.6	125.2	149,817	4,494,496	13.79	0.40	0.23	7.71	0.71	5.47	5.07	0.55	6.34	6.89	5.40	1.97	3.33	1.8276	0.0003	0.00
Total	365.25						171.58	44.00	25.26	70.16		48.27	32.03	3.47	40.04	43.51	49.11	17.97	40.54	94.8275		0.00

0.00 Acre-Ft

Notes:

1. California Department of Water Resources. Nacimiento Dam, Station T09 605600 Rainfall Depth Duration Frequency (47 years). Rainfall for 100-year Return Period Used.
2. Based on 2001 Oak Shores Disposal Area Expansion Project by SLO County and Law & Crandall Field Infiltration Testing Reports
3. Evaporation data from California Department of Water Resources. Nacimiento Dam, Station T09 6056 00.

**WATER BALANCE FOR PROPOSED GREGG RANCH SPRAY FIELDS
OAK SHORES BUILD-OUT; 1713 UNITS**

**CSA-7A WASTEWATER SYSTEM CAPACITY STUDY
ADDENDUM**

Assumptions

Areas Contributing to Evapotranspiration

- 1.3 Existing Sprayfield area (ac)
- 15 Proposed Gregg Ranch Sprayfield area (ac)

Areas Contributing to Pond Evaporation

- 1.4 Existing Sprayfield ponds surface area (ac)
- 0.99 WWTP Pond Surface Area (ac)
- 2 Gregg Ranch Build out Pond Surface Area (ac)

Areas Contributing Precipitation Runoff

- 2 Gregg Ranch Build-out Pond Catchment Area (ac)
- 3.8 Existing Sprayfield Ponds Catchment Area (ac)
- 1.09 Treatment Plant Catchment (ac) (Ponds +10%)

Deep Perc Infiltration rate

- 0.17 New Spray Field infiltration rate (Gregg Ranch)
- 0.09 Existing Spray Field infiltration rate (ft/day)²

1713 Number of connections

40% Full-Time Occupancy

Water Balance

Month	Days per Month	Demand			Precipitation		Evapotranspiration					Evaporation		Deep Percolation		Cumulative Storage (acre-ft)						
		Maximum Monthly Flow per Full-Time Connection (gpd/conn)	Maximum Monthly Flow per Seasonal Connection (gpd/conn)	Combined Maximum Monthly Flow per Connection (gpd/conn)	TWW Flow (gpd)	TWW Flow (gal)	TWW Flow (acre-ft)	100-year Monthly Precip (in) ¹	Precip Load (acre-ft)	Pan Evap (in) ³	ETo/ETp Ratio	ETo (in)	Net Eto (in) Eto-Precip	Existing Sprayfield ETo (acre-ft)	New Sprayfield Eto (acre-ft)		Total Sprayfield Eto (acre-ft)	Reservoir Evap (in)	Reservoir Evap (acre-ft)	Max Perc under Existing Spray Fields (acre-ft)	Quantity of WW to be disposed on Gregg Ranch sprayfield (acre-ft)	Required Perc at Gregg Ranch to dispose remaining WW (ft/day)
October	31	162	60.8	101.3	173,493	5,378,272	16.51	1.54	0.88	5.28	0.63	3.33	1.79	0.19	2.23	2.43	3.70	1.35	3.44	10.17	0.0019	0.00
November	30	162	55.1	97.9	167,634	5,029,025	15.43	3.52	2.02	2.67	0.82	2.19	0.00	0.00	0.00	0.00	1.87	0.68	3.33	13.44	0.0025	0.00
December	31	162	48.9	94.1	161,262	4,999,116	15.34	8.89	5.10	1.66	0.82	1.36	0.00	0.00	0.00	0.00	1.16	0.43	3.44	16.58	0.0030	0.00
January	31	162	66.1	104.5	178,940	5,547,139	17.02	9.33	5.36	1.56	0.92	1.44	0.00	0.00	0.00	0.00	1.09	0.40	3.44	18.54	0.0034	0.00
February	28.25	162	116.0	134.4	230,227	6,503,918	19.96	8.71	5.00	2.12	0.84	1.78	0.00	0.00	0.00	0.00	1.48	0.54	3.14	21.28	0.0039	0.00
March	31	162	113.2	132.7	227,349	7,047,830	21.63	6.51	3.74	3.76	0.74	2.78	0.00	0.00	0.00	0.00	2.63	0.96	3.44	20.97	0.0038	0.00
April	30	162	121.0	137.4	235,366	7,060,986	21.67	3.70	2.12	5.68	0.59	3.35	0.00	0.00	0.00	0.00	3.98	1.45	3.33	19.01	0.0035	0.00
May	31	162	159.1	160.3	274,525	8,510,287	26.12	1.01	0.58	8.06	0.76	6.13	5.12	0.55	6.39	6.95	5.64	2.06	3.44	14.25	0.0026	0.00
June	30	162	125.4	140.0	239,889	7,196,656	22.09	0.26	0.15	9.92	0.62	6.15	5.89	0.64	7.36	8.00	6.94	2.54	3.33	8.37	0.0015	0.00
July	31	162	162.0	162.0	277,506	8,602,686	26.40	0.04	0.02	11.32	0.72	8.15	8.11	0.88	10.14	11.02	7.92	2.90	3.44	9.07	0.0017	0.00
August	31	162	133.6	145.0	248,316	7,697,811	23.63	0.09	0.05	10.42	0.59	6.15	6.06	0.66	7.57	8.23	7.29	2.67	3.44	9.34	0.0017	0.00
September	30	162	100.6	125.2	214,399	6,431,972	19.74	0.40	0.23	7.71	0.71	5.47	5.07	0.55	6.34	6.89	5.40	1.97	3.33	7.77	0.0014	0.00
Total	365.25						245.55	44.00	25.26	70.16		48.27	32.03	3.47	40.04	43.51	49.11	17.97	40.54	168.79		0.00

0.00 Acre-Ft

Notes:

1. California Department of Water Resources. Nacimiento Dam, Station T09 605600 Rainfall Depth Duration Frequency (47 years). Rainfall for 100-year Return Period Used.
2. Based on 2001 Oak Shores Disposal Area Expansion Project by SLO County and Law & Crandall Field Infiltration Testing Reports
3. Evaporation data from California Department of Water Resources. Nacimiento Dam, Station T09 6056 00.

Design Flow – For this analysis, the design flow used is the combined ADMMF from full-time units (162 gpd/unit) and the ADMMF from seasonal units, corresponding to a 40% occupancy rate, which varies depending on the calendar month (Table 3-5 of the Interim Report).

The number of units for Phases 2-6 of Tract 2162 is 1197, as identified in the Interim Report. The number of units for full build-out of the Oak Shores community is 1713.

Pond Area – The surface area of the storage ponds subject to evaporation.

Pond Catchment Area – The area of the pond defined by the top of the berm. All rain that falls within this area will enter into the pond. The area outside of this boundary is or will be graded to drain away from the pond.

Field Area – The area, in acres, of the spray disposal field.

Spray Disposal Field Design Percolation Rate – The percolation rate that is obtainable at the spray disposal field site. A value of 10 ft/day was used based on the average site infiltration rate of 12 minutes/inch.

Allowable Spray Field Percolation – When effluent is applied to the spray field in excess of the crop requirements, deep percolation of the effluent results. There is a maximum amount of deep percolation that can be allowed and still provide a marketable crop or prevent the creation of nuisance conditions and management problems. The report: Irrigation with Reclaimed Municipal Wastewater from the California State Water Resources Control Board establishes this maximum daily percolation rate in the range of 4% to 6% of the minimum soil profile permeability. A value of 5% was chosen for this water balance analysis. 5% of the observed infiltration rate results in an allowable spray field percolation rate of 0.5 ft/day for the Gregg Ranch property.

100-Year Precipitation – The amount of annual rainfall that is equal to or exceeded once, on the average, every 100 years. The annual 100-year precipitation from data collected at the DWR Nacimiento Dam station T09 6056 00 is included on the water balance. The estimated 100-year annual rainfall is 44 inches and it is distributed over twelve months using Table 7 – “Monthly % Distribution of Mean Annual Precipitation”, “California-Vegetative Water Use in California, 1974.” The distribution factors are summarized on the water balance spreadsheet.

Evaporation/Evapotranspiration – The annual average class A pan evaporation from 40 years of records from the DWR Nacimiento Dam weather station T09 6056 was 70.16 inches. Pan evaporation data are higher than actual evaporation from a large water body and must be adjusted to account for radiation and heat exchange effects. The adjustment factor is called the pan coefficient which ranges from 0.7 to 0.8 in the summer and is close to the actual pan evaporation in the winter.

Column A – Total Wastewater Flow (acre-ft)

(Days per month) x (# connections) x{ (max month per connection)(% occupancy) + (Seasonal flow per connection)} -> convert to acre feet

Column B – Precipitation Load (acre-ft)

$$(100\text{-year precip}) \times \{(\text{Existing WW Pond Catchment Area}) + (\text{New Pond Catchment Area})\}$$

Column C – Total Spray field Evapotranspiration (ET_o)(acre-ft)*

$$\{(\text{Pan Evap}) \times (\text{ETo Coefficient})\} \times \{(\text{Existing Spray field Area}) + (\text{New Spray field Area})\}$$

*Net ETo is calculated by taking the adjusted ETo (Pan Evap x ETo Coefficient) and subtracting the corresponding month's 100-year precipitation value. For months when the precipitation value is greater than the adjusted ETo, the evapotranspiration value is zero. This is due to the fact that there is likely no evapotranspiration happening during wet months when the field is saturated due to rainfall.

Column D – Pond Evaporation (acre-ft)

$$(\text{Pan Evap}) \times \{(\text{Existing Pond Surface Area}) + (\text{New Pond Surface Area})\}$$

Column E – Quantity of Wastewater to be Disposed on Gregg Ranch (acre-ft)

$$\begin{matrix} (A) & (B) & (C) & (D) & (E) \\ \text{Total Flow} + \text{Precipitation} & - & \text{Total Evapotranspiration} & - & \text{Evaporation} - \text{Existing Sprayfield Percolation} \end{matrix}$$

Column F – Required Percolation at Gregg Ranch to dispose remaining WW (ft/day)

$$\{(E) / 365 \text{ days}\} / 15 \text{ Acres}$$

DRAFT

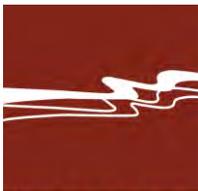
Wastewater System Capacity Study Addendum No. 2

for

San Luis Obispo County
Service Area 7-A (Oak Shores)

March 16, 2018

Prepared by:



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TABLE OF CONTENTS

CHAPTER 1. SPRAY FIELD RE-EVALUATION

- 1.1 Maximum Month Water Balance at Reduced Size
- 1.2 Average Annual Water Balance at Reduced Size

FIGURES

- Figure 1. Revised Spray Field Location
- Figure 2. Revised Spray Field Layout

TABLES

- Table 1. Tract 2162 Maximum Month Flow Revised Water Balance
- Table 2. Tract 2162 Average Flow Revised Water Balance

APPENDIX

- Appendix A. Tract 2162 Revised Water Balance – Maximum Flow
- Appendix B. Tract 2162 Revised Water Balance – Average Flow

CHAPTER 1: SPRAY FIELD RE-EVALUATION

Per the environmental review process, it has been determined that the proposed wastewater disposal pond and spray field on the Gregg Ranch property could result in visual or biological resource impacts. It has been recommended that the Gregg Ranch component of the proposed project be resized to minimize these impacts. A conceptual boundary of approximately 8 acres, within the initially proposed site, has been identified as a more suitable location for the spray field to reduce the visual and environmental impacts. Wallace Group has prepared the following addendum to evaluate the suitability of the revised spray field location in meeting the wastewater treatment and disposal objectives of the project. Figure 1 outlines the proposed 8 acre site compared to the initially proposed spray field location (approximately 20 acres total). The approximate 8 acre boundary was selected to minimize potential impacts on trees, while setting the site back from Lynch Canyon road to mitigate visual impacts.

As determined in the previous evaluation, Wastewater System Capacity Study Addendum No. 1 dated January 26, 2015, the additional disposal capacity associated with Tract 2162 would require a new 10 acre-ft holding pond (1 acre surface area) and 15 acre spray field. The proposed site also included a 5,000 square foot area for solids/sludge drying. The 10 acre-ft holding pond was sized to store approximately 60 days of maximum wastewater flow associated with the buildout population of Tract 2162. The water balance used to calculate the initial pond and spray field sizes assumed conservative factors to ensure the areas selected were large enough to handle peak flows and maximum buildout possibilities. In addition, assumptions were made for accommodations in the event CSA-7A wanted to use the Gregg Ranch property for buildout of the entire Oak Shores CSA area and discontinue using the existing spray fields in the future.

1.1 Maximum Month Water Balance at Reduced Size

To determine the impacts of reducing the area of the proposed spray field, the water balance used in Addendum #1 was revised. A copy of the revised water balance is included in Appendix A. This water balance continues to use the conservative maximum month water demand for Tract 2162 Phases 2 – 6, however rather than the combined wastewater flow from existing Oak Shores parcels and Tract 2162, only wastewater flow from parcels in Tract 2162 Phases 2 – 6 were modeled. The revised water balance also assumes 100-year storm for the precipitation estimation, similar to the initial water balance. For this scenario, the spray field size was reduced to 7 acres and the storage pond remained at 1 acre surface area (10 acre-ft capacity).

Table 1. Tract 2162 Maximum Month Flow Revised Water Balance					
Annual WW Flow (acre-ft) ¹	Annual Precipitation Loading (acre-ft) ²	Annual Pond Evaporation (acre-ft) ³	Annual Evapotranspiration From Spray Field (acre-ft) ⁴	Percolation Under New Spray Field (acre-ft) ⁵	Cummulative Storage (acre-ft) ⁶
40.85	3.67	4.09	28.16	12.26	0.00

¹Annual WW flow assumes 285 connections at maximum month WWTP flow from data collected for 2017.

²Precipitation data calculated from 100-year storm rainfall (44.0") data collected from 1942 – June 2014 from California Department of Water Resources weather station T09 605600 at Nacimiento dam.

³Calculated from 1 acre pond surface and 70% monthly pan evapotranspiration at California Department of Water Resources weather station T09 605600 at Nacimiento Dam.

⁴Calculated from 7 acre sprayfield and average monthly evapotranspiration rate from CIMIS Weather Station at Nacimiento Dam.

⁵Annual sum of remaining water demand that will need to be disposed of via deep percolation (i.e. wastewater and precipitation not taken up by evapotranspiration or evaporation)

⁶Amount of water that can not be disposed of and will require monthly storage

In this scenario, the quantity of water that will be discharged as deep percolation is 12.67 acre-ft/year. According to the soils infiltration data for the 7 acres, the maximum capacity for deep percolation is 444.48 acre-ft per year. Therefore the 12.67 acre-ft is 2.6% of the field capacity.

1.2 Average Flow Water Balance at Reduced Size

A second water balance revision was prepared to outline the practical water application rates for the proposed project, which uses average wastewater flows and average annual precipitation. This water balance is provided in Appendix B. In this scenario, average estimated wastewater flow was used, rather than maximum month flow. Also, average annual precipitation was used rather than 100-year storm event annual precipitation values. The resulting water balance is summarized in Table 2.

Table 2. Tract 2162 Average Flow Revised Water Balance					
Annual WW Flow (acre-ft) ¹	Annual Precipitation Loading (acre-ft) ²	Annual Pond Evaporation (acre-ft) ³	Annual Evapotranspiration From Spray Field (acre-ft) ⁴	Percolation Under New Spray Field (acre-ft) ⁵	Cummulative Storage (acre-ft) ⁶
21.07	1.17	4.09	22.32	-10.00	0.00

¹Annual WW flow assumes 285 connections at existing average WWTP flow from data collected for 2017.

²Precipitation data calculated from annual average rainfall (14.11") data collected from 1942 – June 2014 extrapolated to monthly percentage based on 100-year storm event data from California Department of Water Resources weather station T09 605600 at Nacimiento dam.

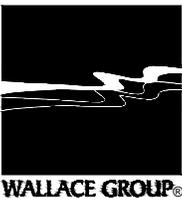
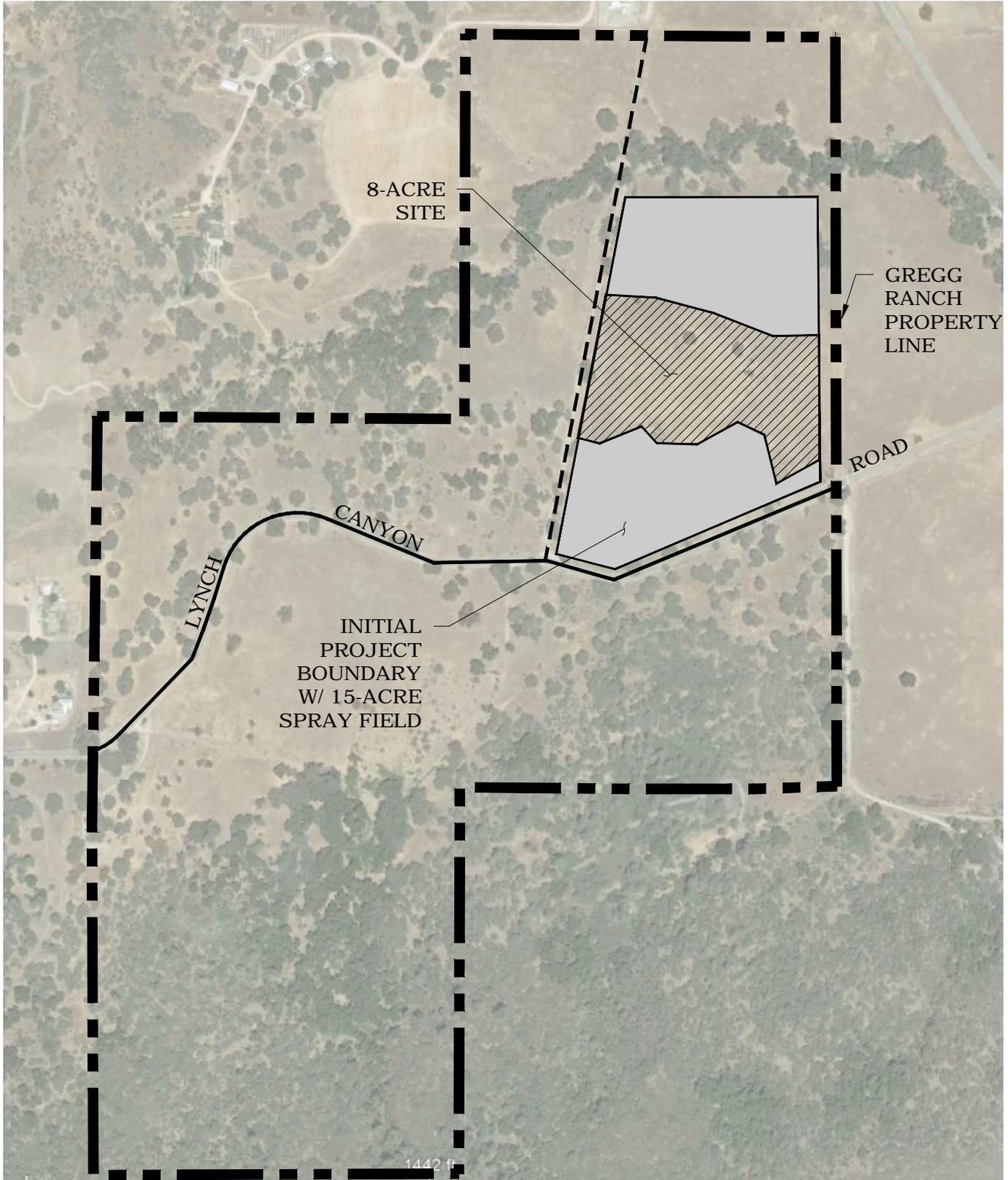
³Calculated from 1 acre pond surface and 70% monthly pan evapotranspiration at California Department of Water Resources weather station T09 605600 at Nacimiento Dam.

⁴Calculated from 7 acre sprayfield and average monthly evapotranspiration rate from CIMIS Weather Station at Nacimiento Dam.

⁵Annual sum of remaining water demand that will need to be disposed of via deep percolation (i.e. wastewater and precipitation not taken up by evapotranspiration or evaporation)

⁶Amount of water that can not be disposed of and will require monthly storage

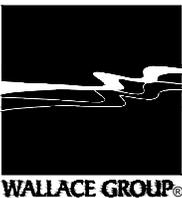
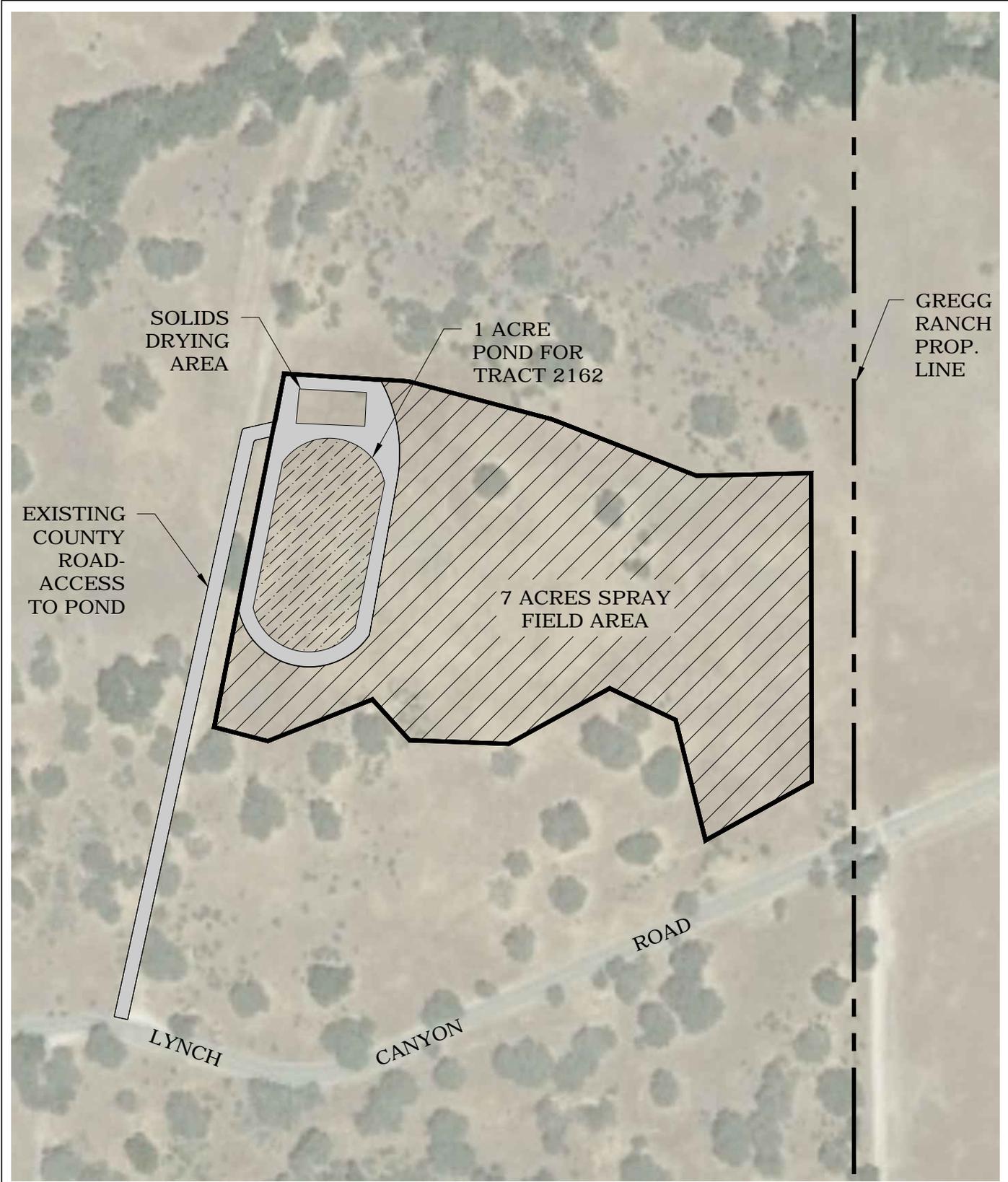
This water balance was prepared using a 10 acre-ft pond and a 7 acre sprayfield. As outlined in Table 2, the average annual wastewater flow combined with the annual precipitation (21.07 AF + 1.17 AF) will be taken up by the annual evapotranspiration rate. Therefore, on an average annual basis, no water will be discharged via deep percolation.



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**OAK SHORES CSA-7A
 WWTP IMPROVEMENTS
 TRACT 2162 - GREGG RANCH
 FIGURE 1 - SPRAY FIELD LOCATION**

JOB No. :	1216
DRAWING :	SITE
DRAWN BY :	SJ
DATE :	3-13-18
SCALE :	1" = 500'



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OAK SHORES CSA-7A
 WWTP IMPROVEMENTS
 TRACT 2162 - GREGG RANCH
 FIGURE 2 - SPRAY FIELD LAYOUT

JOB No. :	1216
DRAWING :	SITE
DRAWN BY :	SJ
DATE :	3-13-18
SCALE :	1" = 200'

Attachment A – Maximum Month Water Balance for Tract 2162 Phases 2 – 6

WATER BALANCE FOR PROPOSED GREGG RANCH SPRAY FIELDS

TRACT 2162 PHASE 2 - 6 (285 UNITS)

Maximum Month Flow - 100-year Storm Precipitation

CSA-7A WASTEWATER SYSTEM CAPACITY STUDY

ADDENDUM #2

Assumptions

Areas Contributing to Evapotranspiration

7 Proposed Gregg Ranch Sprayfield area (ac)

Areas Contributing to Pond Evaporation

1 Gregg Ranch Build out Pond Surface Area (ac)

Areas Contributing Precipitation Runoff

1 Gregg Ranch Build-out Pond Catchment Area (ac)

Deep Perc Infiltration rate

0.17 New Spray Field infiltration rate (Gregg Ranch)

285 Number of connections

40% Full-Time Occupancy

Water Balance

Month	Days per Month	Demand			Precipitation		Evapotranspiration			Evaporation		Deep Percolation		Excess WW to storage (acre-ft)	Cumulative Storage (acre-ft)				
		Maximum Monthly Flow per Full-Time Connection (gpd/conn)	Maximum Monthly Flow per Seasonal Connection (gpd/conn)	Combined Maximum Monthly Flow per Connection (gpd/conn)	TWW Flow (gpd)	TWW Flow (gal per month)	TWW Flow (acre-ft)	100-year Monthly Precip (in) ¹	Precip Load (acre-ft)	Pan Evap (in) ³	ETo/ETp Ratio	ETo (in)	Sprayfield Eto (acre-ft)			Pond Evap (in)	Pond Evap (acre-ft)	Max/Potential Perc under Existing Spray Fields (acre-ft)	Quantity of WW That requires deep percolation (acre-ft)
October	31	162	60.8	101.3	28,865	894,809	2.75	1.54	0.13	5.28	0.63	3.33	1.94	3.70	0.31	37.72	0.63	-37.10	0.00
November	30	162	55.1	97.9	27,890	836,703	2.57	3.52	0.29	2.67	0.82	2.19	1.28	1.87	0.16	36.51	1.43	-35.08	0.00
December	31	162	48.9	94.1	26,830	831,727	2.55	8.89	0.74	1.66	0.82	1.36	0.79	1.16	0.10	37.72	2.40	-35.32	0.00
January	31	162	66.1	104.5	29,771	922,904	2.83	9.33	0.78	1.56	0.92	1.44	0.84	1.09	0.09	37.72	2.68	-35.04	0.00
February	28.25	162	116.0	134.4	38,304	1,082,088	3.32	8.71	0.73	2.12	0.84	1.78	1.04	1.48	0.12	34.38	2.88	-31.49	0.00
March	31	162	113.2	132.7	37,825	1,172,581	3.60	6.51	0.54	3.76	0.74	2.78	1.62	2.63	0.22	37.72	2.30	-35.43	0.00
April	30	162	121.0	137.4	39,159	1,174,770	3.61	3.70	0.31	5.68	0.59	3.35	1.95	3.98	0.33	36.51	1.63	-34.88	0.00
May	31	162	159.1	160.3	45,674	1,415,897	4.35	1.01	0.08	8.06	0.76	6.13	3.57	5.64	0.47	37.72	0.39	-37.34	0.00
June	30	162	125.4	140.0	39,911	1,197,342	3.67	0.26	0.02	9.92	0.62	6.15	3.59	6.94	0.58	36.51	-0.47	-36.98	0.00
July	31	162	162.0	162.0	46,170	1,431,270	4.39	0.04	0.00	11.32	0.72	8.15	4.75	7.92	0.66	37.72	-1.02	-38.74	0.00
August	31	162	133.6	145.0	41,314	1,280,722	3.93	0.09	0.01	10.42	0.59	6.15	3.59	7.29	0.61	37.72	-0.26	-37.98	0.00
September	30	162	100.6	125.2	35,671	1,070,118	3.28	0.40	0.03	7.71	0.71	5.47	3.19	5.40	0.45	36.51	-0.33	-36.83	0.00
Total	365.25						40.85	44.00	3.67	70.16		48.27	28.16	49.11	4.09	444.48	12.26	-432.22	

0.00 Acre-Ft

Notes:

- California Department of Water Resources. Nacimiento Dam, Station T09 605600 Rainfall Depth Duration Frequency (47 years). Rainfall for 100-year Return Period Used.
- Based on 2001 Oak Shores Disposal Area Expansion Project by SLO County and Law & Crandall Field Infiltration Testing Reports
- Evaporation data from California Department of Water Resources. Nacimiento Dam, Station T09 6056 00.

Attachment B – Average Annual Flow Water Balance for Tract 2162 Phases 2 – 6

WATER BALANCE FOR PROPOSED GREGG RANCH SPARY FIELD

TRACT 2162 PHASES 2-6 (285 UNITS)

Average Water Demand - Average Precipitation

CSA-7A WASTEWATER SYSTEM CAPACITY STUDY

ADDENDUM #2

Assumptions

- Areas Contributing to Evapotranspiration
- 7 Proposed Gregg Ranch Sprayfield area (ac)
- Areas Contributing to Pond Evaporation
- 1 Gregg Ranch Pond Surface area (ac)
- Areas Contributing Precipitation Runoff
- 1 Gregg Ranch Storage Ponds (ac)
- Deep Perc infiltration rate
- 0.17 Gregg Ranch Spray Field infiltration rate (ft/day)
- 583 Number of existing connections (CSA-7A)
- 285 Number of new connections (phase 2 - 6)
- 90 gpd/unit existing connections (Max Month 2016 - 2016)

Water Balance

Month	Days per Month	WW Demand				Precipitation		Evapotranspiration			Evaporation		Percolation		Storage					
		Maximum Month from Existing CSA-7A Plant (gpd) ⁴	Average gpd/unit for existing WWTP (gpd/unit)	Monthly Average Flow Phases 2 - 6 Based on 2017 data	TWW Flow (gal/month)	TWW Flow (acre-ft)	Monthly percentage based on 100-year storm data	Average Rainfall (in)	Precip Load (acre-ft)	Pan Evap (in) ³	ETo/ETp Ratio	ETo (in)	New Sprayfield Eto (acre-ft)	Pond Evap (in)	Pond Evap (acre-ft)	Potential Perc under New Spray Fields (acre-ft)	Quantity of WW to require deep percolation (acre-feet)	Excess WW to storage (acre-ft)	TWW Flow to Storage (acre-ft)	Cumulative Storage (acre-ft)
October	31	27,700	48	13,541	419,776	1.29	3.50%	0.49	0.04	5.28	0.63	3.33	1.94	3.70	0.31	37.72	-0.9189	-38.64	-38.64	0.00
November	30	35,400	61	17,305	519,160	1.59	8.00%	1.13	0.09	2.67	0.82	2.19	1.28	1.87	0.16	36.51	0.2545	-36.25	-36.25	0.00
December	31	23,900	41	11,684	362,190	1.11	20.20%	2.85	0.24	1.66	0.82	1.36	0.79	1.16	0.10	37.72	0.4583	-37.27	-37.27	0.00
January	31	37,100	64	18,136	562,227	1.73	21.20%	2.99	0.25	1.56	0.92	1.44	0.84	1.09	0.09	37.72	1.0467	-36.68	-36.68	0.00
February	28.25	50,200	86	24,540	693,264	2.13	19.80%	2.79	0.23	2.12	0.84	1.78	1.04	1.48	0.12	34.38	1.1980	-33.18	-33.18	0.00
March	31	33,200	57	16,230	503,125	1.54	14.80%	2.09	0.17	3.76	0.74	2.78	1.62	2.63	0.22	37.72	-0.1243	-37.85	-37.85	0.00
April	30	36,600	63	17,892	536,758	1.65	8.41%	1.19	0.10	5.68	0.59	3.35	1.95	3.98	0.33	36.51	-0.5400	-37.05	-37.05	0.00
May	31	42,900	74	20,972	650,123	2.00	2.30%	0.32	0.03	8.06	0.76	6.13	3.57	5.64	0.47	37.72	-2.0212	-39.75	-39.75	0.00
June	30	41,050	70	20,067	602,020	1.85	0.59%	0.08	0.01	9.92	0.62	6.15	3.59	6.94	0.58	36.51	-2.3118	-38.82	-38.82	0.00
July	31	52,500	90	25,665	795,605	2.44	0.09%	0.01	0.00	11.32	0.72	8.15	4.75	7.92	0.66	37.72	-2.9719	-40.70	-40.70	0.00
August	31	44,600	77	21,803	675,885	2.07	0.20%	0.03	0.00	10.42	0.59	6.15	3.59	7.29	0.61	37.72	-2.1173	-39.84	-39.84	0.00
September	30	37,200	64	18,185	545,557	1.67	0.91%	0.13	0.01	7.71	0.71	5.47	3.19	5.40	0.45	36.51	-1.9579	-38.47	-38.47	0.00
Total	365.25		66			21.07		14.11	1.18	70.16		48.27	28.16	49.11	4.09	444.48	-10.0057	-454.49	-454.49	0.00

0.00 Acre-Ft

Notes:

1. California Department of Water Resources. Nacimiento Dam, Station T09 605600 Rainfall Depth Duration Frequency (47 years). Rainfall for 100-year Return Period Used.
2. Based on 2001 Oak Shores Disposal Area Expansion Project by SLO County and Law & Crandall Field Infiltration Testing Reports
3. Evaporation data from California Department of Water Resources. Nacimiento Dam, Station T09 6056 00.
4. Average monthly flow from 2017 WWTP annual report

