

ORO LOMA WET WEATHER EQUALIZATION EXPANSION PROJECT

Addendum to the Initial Study / Mitigated Negative Declaration

Prepared for
Oro Loma Sanitary District

January 2019



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CHAPTER 1

Background and Purpose of the Addendum

Background

The Oro Loma Sanitary District (OLSD) and the Castro Valley Sanitary District jointly own, and OLSD operates, the Oro Loma Sanitary District & Castro Valley Sanitary District Water Pollution Control Plant (WWTP) that serves the communities of San Lorenzo, Ashland, Cherryland, Fairview, and Castro Valley and portions of the Cities of San Leandro and Hayward, with a combined population of approximately 190,000. The WWTP is located at 2600 Grant Avenue in the community of San Lorenzo, unincorporated Alameda County, California.

The OLSD was the lead agency for the Wet Weather Equalization and Ecotone Demonstration Project Initial Study Mitigated Negative Declaration (ISMND; State Clearinghouse No. 2013112070), referred to herein as the “ISMND project.” The OLSD adopted the ISMND and approved implementation of the ISMND project on February 18, 2014. The ISMND evaluated potential environmental impacts that could occur as a result of implementing the project and provided applicable mitigation to reduce the intensity of potential environmental impacts. As part of approval of the ISMND project, the OLSD adopted a Mitigation Monitoring and Reporting Program. The OLSD completed construction of the ISMND project in 2017. Since then, OLSD developed a nutrient reduction treatment process that requires more storage than is available in the multi-purpose wet-weather equalization facility implemented as part of the ISMND project. The Oro Loma Wet Weather Equalization Expansion Project (proposed project), which is the subject of this addendum, would remedy this problem by modifying the equalization facility, increasing its storage to accommodate infrequent peak wet-weather flows.

The project is sited adjacent to and east of the existing OLSD WWTP, near the eastern shoreline of San Francisco Bay and approximately 4 miles south of the Oakland International Airport, as shown in **Figure 1**. The project site consists of a 4.5-acre parcel located at 2536 Grant Avenue, unincorporated Alameda County, California.

Chapter 2 of this document presents a description of the proposed project. Chapter 3 presents an evaluation of the environmental impacts of the project as currently developed in comparison to the impacts disclosed in the ISMND. Chapter 4 summarizes the findings of the evaluation presented in Chapter 3. Chapter 5 contains mitigation measures from the adopted Mitigation Monitoring and Reporting Program.



SOURCE: Oro Loma Sanitary District

Oro Loma Sanitary District Equalization Expansion

Figure 1
Project Area



Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community
 Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User

Purpose of This Addendum

The CEQA Guidelines (Sections 15162 and 15164) allow that a lead agency may prepare an addendum to a previously certified EIR if some changes or additions to the environmental evaluation are necessary, but none of the following occurs:

1. Substantial changes are proposed in the project which will require major revisions to the EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was adopted, shows any of the following:
 - a. The project will have one or more significant effects not discussed in the EIR;
 - b. Significant effects previously examined will be substantially more severe than shown;
 - c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
 - d. Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.

This Addendum documents that the project proposed subsequent to adoption of the ISMND does not trigger any of the conditions described above.

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CHAPTER 2

Project Description

Introduction

As described in Chapter 1, the Oro Loma Sanitary District (OLSD) is proposing the Oro Loma Wet Weather Equalization Expansion Project (proposed project), which would modify the multi-purpose wet-weather equalization facility constructed as part of a previous project described and evaluated in the Wet Weather Equalization and Ecotone Demonstration Project Initial Study Mitigated Negative Declaration (ISMND). This document is an addendum to the ISMND and analyzes the potential environmental impacts from implementation of the proposed project.

Project Location

The project site consists of a 4.5-acre parcel located at 2536 Grant Avenue in the community of San Lorenzo, unincorporated Alameda County, California, adjacent to and east of the existing OLSD wastewater treatment plant (WWTP), as shown in Figure 1.

Summary of Previous Project

The Oro Loma Wet Weather Equalization and Ecotone Demonstration Project (ISMND project), completed in 2017, consists of a multi-purpose wet-weather equalization facility including both a treatment wetland and an upland ecotone slope for polishing of treated wastewater. The facility accommodates infrequent peak wet-weather flows, and provides an opportunity to pilot several adaptation strategies related to sea level rise, water quality protection, and infrastructure sustainability. The ISMND project occupies a fifteen-acre parcel.

As part of the ISMND project, OLSD adopted mitigation measures that became part of the project. The ISMND project mitigation measures would also apply to the proposed project described in this chapter.

Proposed Project

The proposed project would increase the capacity within the existing multi-purpose wet-weather equalization basin by deepening the basin and related actions. **Table 1** presents a comparison of characteristics of the ISMND project and proposed project.

**TABLE 1
SUMMARY OF PROPOSED PROJECT**

Characteristic	ISMND Project	Proposed Project
Area of ground disturbance	15 acres	4.5 acres
Maximum depth of basin	-2 feet	-10 feet
Equalization Capacity	8 million gallons	24 million gallons
Basin Area	3.41 acres	Same
Berm top elevation	13 feet NAVD	12 feet NAVD
Earthwork (Cut and Fill Volumes)	35,570 cubic yards of cut 50,690 cubic yards of fill	80,000 cubic yards (combined cut and fill)
Offhaul Volume	22,370 cubic yards, hauled to lands south of Bockman Canal	80,000 cubic yards, hauled to lands south of Bockman Canal

SOURCE: OLSD

Expanded Basin

The expanded basin would have capacity to store up to 24 million gallons of primary effluent. The expanded equalization basin would be deeper, but not larger in areal extent, than the existing equalization basin, extending to -10 feet NAVD88. The maximum water surface elevation within the expanded basin would be 16 feet NAVD88. The basin would continue to be surrounded by the existing berm. The top of the existing berm would be lowered by approximately one foot. After berm lowering, the access road on top of the berm would be 14 feet wide, 2 feet wider than existing conditions.

In order to deepen the berm within the existing equalization basin footprint, a continuous approximately 1,700-foot-long sheet pile wall would be installed within the existing berm. The sheet pile wall top elevation would be 17 feet NAVD88. The base of the 45-foot-long sheet piles would extend 20 feet into Old Bay clay. The access road on top of the berm would be degraded by one foot to an elevation of 12 feet NAVD88.

The existing road between the basin and the rest of the WWTP would be raised in order to allow vehicle access into the expanded basin over the sheet pile wall. The access road would continue into the basin.

Additional grading within the existing basin footprint would occur to raise the spillway to an elevation of 15.5 feet NAVD88. To protect the spillway from erosion and downcutting, the elevated spillway would be armored using articulated concrete mats.

Other Associated Components

In order to connect the basin to the rest of the WWTP, an existing pump station would be replaced. The replacement pump station would be installed within the same footprint as the existing pump station, but to a lower depth, in order to enable full drainage of the expanded basin. The existing pump station is located within the existing berm.

Facilities associated with the treatment wetlands within the existing basin would also be removed, including the nitrification trench between the existing basin and the WWTP.

The existing ecotone slope will remain in place, and treated effluent will continue to be sent to the ecotone slope as occurs under current conditions.

Construction

Construction would occur over approximately 40 weeks. Construction crews would be comprised of 5-10 personnel. Parking would be available within the paved area of the WWTP.

Construction equipment would generally be the same as those described in the ISMND, with the addition of a single vibratory sheet pile driving rig, as follows:

- Scraper
- Compactors/Rollers
- Electric Generators
- Air Hammers
- Backhoes
- Loaders
- Sprayers and rollers
- Brooms & Sweeping Equipment, Water trucks
- Concrete Mixers/Pumps/Vibrators
- Graders
- Excavators
- Pile drivers
- Welding and Cutting Equipment

Generally, construction activities would occur in the following order:

- Site Mobilization
- Equipment and Materials Delivery
- Site Clearance
- Removal of existing pump station
- Installation of basin piles and walls
- Cement stabilization of interior basin sidewalls
- Earthwork to excavate basin
- Final fine grading
- Yard piping and final interties to WWTP piping.
- Installation of new basin return pump station and piping to existing junction structure
- Startup and testing

Earthwork at the site would involve approximately 65,000 cubic yards of cut and fill.

Approximately 80,000 cubic yards of material would be excavated from the site. A maximum of 84 trucks per day would haul excavated material from the site over a period of five weeks during excavation of the basin.

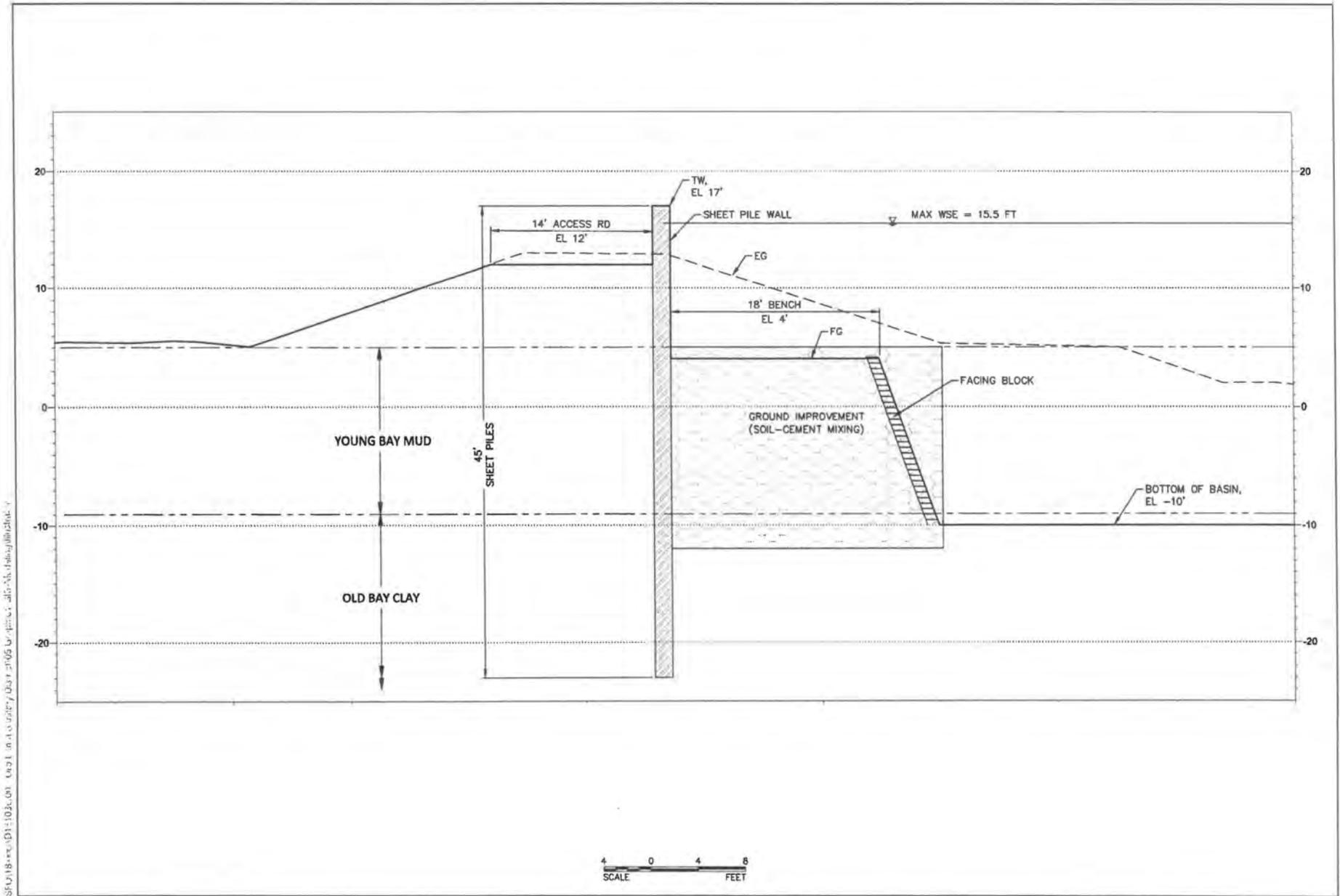
Figure 2 illustrates the extent of ground disturbance associated with the proposed project. The area of ground disturbance for the equalization basin evaluated as part of the ISMND project is also shown on Figure 2. **Figure 3** presents a conceptual cross-section of the expanded basin.

Operation

The expanded equalization basin would allow for year-round nitrification and denitrification of effluent. The proposed volume increase would result in further nutrient reductions in effluent to San Francisco Bay. During most of the year, the expanded equalization basin would not be used. The basin will provide temporary storage (up to 36 hours) of up to 24 million gallons of primary treated wastewater during infrequent (approximately 10 days per year) peak wet weather flow discharges during large storm events. The new equalization storage would drain to the Headworks using the existing pipeline currently connecting the storage basin back to the Headworks of the treatment facility. No new staff would be needed to operate the facility.

While not anticipated due to the depth of sheet pile walls and site geology, any groundwater that emerges in the basin during operations would periodically be pumped to the WWTP Headworks for treatment.

OLSD would continue to discharge effluent to either the existing local outfall or EBDA system as allowed by the National Pollutant Discharge Elimination System (NPDES) permits. Treatment capacity at the WWTP would not change.



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SOURCE: CE&G 2018

Oro Loma Sanitary District

Figure 3
Expanded Equalization Basin Conceptual Cross Section



CHAPTER 3

Evaluation of Environmental Impacts

The evaluations in the ISMND¹ were revisited to determine whether any changes to the analyses were warranted based on the current Equalization Expansion project (project). This chapter describes any changes that have occurred in the existing environmental conditions within and near the project area as well as environmental impacts associated with the project. The analysis includes consideration of the mitigation measures adopted for the Master Plan as part of the Mitigation Monitoring and Reporting Program (MMRP). Chapter 5, *Mitigation Monitoring and Reporting Program*, contains all of the mitigation measures from the adopted MMRP that apply to the project.

The topics listed below were sufficiently addressed in the ISMND and required no additional analysis because either the nature, scale, and timing of the project has not changed in ways relevant to the topic or there has not been a substantial change in the circumstances involving the topic on the project site, nor in the local environment surrounding the site.

- **Aesthetics.** The designated scenic vistas and resources in the vicinity of the project have not changed since preparation of the ISMND. The project would not remove trees, affect buildings, include new sources of light or glare, or otherwise alter the character of the Grant Avenue Industrial Area beyond the alterations identified in the ISMND.
- **Agriculture and Forestry Resources.** The state and local land use and zoning designations with respect to agricultural and forest resources have not changed for the site and surroundings, and agricultural or forest use of the site has not commenced since adoption of the ISMND. Thus there has not been a substantial change in the circumstances involving agricultural and forest resources at the site or surrounding areas.
- **Cultural Resources.** The locations of ground disturbance have not changed in ways relevant to historical, archeological, and paleontological resources at the site or surrounding areas. Applicable mitigation measures are included in Chapter 5.
- **Energy Conservation.** The construction and operation equipment and activities proposed for the project would be similar to that evaluated in the ISMND. The project would not require additional energy beyond that currently used at the WWTP.
- **Geology, Soils, and Seismicity.** The scale and timing of the project have not changed in a manner that would exacerbate existing geologic and seismic hazards at the project site. The project would still be required to adhere to the most current version of the California Building

¹ *Oro Loma Wet Weather Equalization and Ecotone Demonstration Project Initial Study / Mitigated Negative Declaration*, adopted by Oro Loma Sanitary District on November 20, 2013.

Code, and excavation safety requirements specified in Title 8 of the California Code of Regulations.

- **Hazards and Hazardous Materials.** The locations of ground disturbance have not changed in ways relevant to hazards and hazardous materials at the site or surrounding areas. Applicable mitigation measures are included in Chapter 5.
- **Hydrology and Water Quality.** Since approval of the ISMND, surface drainage patterns have changed at the site. The equalization basin was constructed in its current location, and muted tidal conditions have been restored to the area east of the project site in part by redirecting stormwater drainage. The equalization basin perimeter levee has been constructed, and as a result the project area is no longer subject to flooding. The nature, scale, and timing of project construction have not changed in a manner that would substantially deplete additional groundwater, further affect drainage patterns or systems, alter water quality or further affect flooding because the facilities would be located at the same site evaluated in the ISMND and would be within the existing basin perimeter levee. The project would not change the wastewater treatment technologies beyond what was evaluated in the ISMND. Project operations related to drainage patterns and risk of tsunami, seiche, or mudflow have not changed since approval of the ISMND. Impacts of the project related to these topics would be the same as discussed in the approved ISMND. Underlying Bay Muds were compacted as part of basin construction, and the project would construct a sheet pile wall extending 20 feet into old Bay clay; effects to groundwater would be similar or reduced compared to those identified in the ISMND.
- **Land Use and Land Use Planning.** The state and local land use plans, policies, and regulations applicable at the site have not changed since adoption of the ISMND, and the character of the project would remain industrial.
- **Mineral Resources.** The state and local land use plans, policies, and regulations applicable at the site have not changed since adoption of the ISMND.
- **Population and Housing.** The project does not alter the effect on treatment capacity (indirectly inducing population growth) and the types of equipment and number of construction activities occurring concurrently would be similar to that evaluated in the ISMND.
- **Public Services and Facilities.** The nature of the project with respect to population growth and impairment of achieving service performance objectives has not changed.
- **Recreation.** The nature of the project with respect to access to recreational areas has not changed. The nature of the project with respect to population growth and residential land use also has not changed.
- **Transportation and Traffic.** The project would require the same maximum daily truck trips during construction as the ISMND project. No additional staff would be needed to operate the project and the project would not alter the existing roadway network or alternative transportation facilities or corridors, same as the ISMND project. The project does not alter the effect of the project on treatment capacity (indirectly inducing population growth) and does not introduce new facilities beyond the WWTP site. Daily construction traffic would be similar to that evaluated in the ISMND, and no work would occur in roadways.

- **Utilities and Service Systems.** The nature of the project with respect to wastewater collection and treatment, water use, and solid waste disposal has not changed.
- **Mandatory Findings of Significance.** No San Leandro or Alameda County projects would be located in the vicinity of the proposed project. OLSA is developing other areas within the WWTP; where applicable, the potential cumulative effects of construction are discussed in the subsequent sections.

Appendix G of the CEQA *Guidelines* contains a suggested form listing the questions lead agencies should normally address in an initial study. Public agencies are also free to devise their own format for initial study checklists, and are encouraged to develop their own thresholds of significance. A revised version of CEQA *Guidelines* Appendix G was adopted by the California Natural Resources Agency in November 2018, and became effective on December 28, 2018. Select topics from the revised CEQA *Guidelines* Appendix G were not evaluated in the ISMND; for ease in comparison this document addresses the same topics and were evaluated in the ISMND, in the same order. Additions to the IS/MND discussion of the remaining topics (i.e., those identified in the 2018 version of CEQA *Guidelines* Appendix G) are included below.

The following discussion describes the environmental impacts of the project as compared to the impacts of the approved project as addressed in the ISMND adopted February 18, 2014. These additions do not reflect the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

Air Quality

<i>Issues (and Supporting Information Sources):</i>	<i>New Potentially Significant Impact</i>	<i>New Less Than Significant with Mitigation Incorporated</i>	<i>New Less Than Significant Impact</i>	<i>Same Impact as Approved Project</i>	<i>Less Impact than Approved Project</i>
3. AIR QUALITY — Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

Regional air quality planning has proceeded since approval of the ISMND. On April 19, 2017, the BAAQMD adopted the most recent revision to the Clean Air Plan – the *2017 Clean Air Plan: Spare the Air Cool the Climate (2017 CAP)*. The state and federal non-attainment status of the San Francisco Bay Area Air Basin (SFBAAB) has not changed since approval of the ISMND. At the time of ISMND approval, the SFBAAB was designated as a nonattainment area for state and national ozone standards, state particulate matter (PM₁₀ and PM_{2.5}) standards, and federal PM_{2.5} (24-hour) standard.

No new sensitive receptors, including residential buildings, schools, colleges or universities, daycare facilities, hospitals, or senior-care facilities have been constructed within 1,000 feet of the WWTP since approval of the ISMND.

Findings of the Previously Adopted ISMND

The ISMND identified less-than-significant impacts with mitigation associated with the project related to air quality.

Discussion

Overview of Changes in Construction and Operation Resulting from Project Modifications

Construction

Construction details of the proposed project were revised to reflect the revised estimates of project construction activities. Air pollutant emissions of ROG, NO_x, PM₁₀, and PM_{2.5} that would

be generated by off-road construction equipment (e.g., excavators, graders, loaders) were estimated using the OFFROAD2017 model along with the proposed project-specific construction schedule and equipment requirements that would be used during construction phase.

Project construction would occur over 40 weeks with a worker schedule of five days per week. Construction was assumed to occur in calendar year 2019. Average daily construction emissions were estimated by dividing the total construction emissions by the number of workdays.

Construction equipment would generally be the same as those described in the ISMND, with the addition of pile drivers. The ISMND project-specific information such as the types and number of construction equipment used, their horsepower rating, and daily usage in terms of hours per day were applied to the proposed project. The number of days each piece of equipment was used within the construction period of the ISMND was scaled using a factor of two to represent a conservative estimate of the proposed project construction activity. Pile driving equipment assumptions for construction equipment type and its horsepower rating were based on similar projects at wastewater treatment facilities in San Jose.² Pile driving equipment activity parameters are specific to the proposed project.

Emissions from on-road motor vehicles used during construction were estimated by multiplying EMFAC2017 emissions factors with the estimated total miles travelled by project-related worker vehicles and trucks. Worker commute trips throughout the construction period are directly dependent on the active days of construction. As mentioned, the active construction days were scaled from the ISMND. Each worker trip was assumed to be 20 miles round trip. The proposed project haul truck trips were directly dependent on the conservative scaling of the ISMND construction activities. Daily emissions by vehicle class (i.e., light-duty gasoline-fueled trucks and heavy-duty trucks) were estimated using the EMFAC2017 emission factors multiplied by the estimated project-related vehicle trips and the estimated daily mileage traveled by the vehicles.

All assumptions and calculations used to estimate the project-related construction emissions are provided in **Appendix A**. Estimated average daily emissions are shown in **Table 2** and are compared to the BAAQMD thresholds.

Violation of Air Quality Standards

Table 2 summarizes daily criteria air pollutant emissions during project construction. (No changes to operational emissions are expected due to no expected increase in staff and no expected change in pump capacity.) A line summarizing estimates for the OLSD Wet Weather Outfall and Nutrient Optimization Project, which could be under construction at the same time as the proposed project, is also included.

² Pile driving equipment estimates were based on equipment estimates generated for continuous sheet pile installation at the San Jose/Santa Clara Regional Wastewater Facility, at an installation rate of 12 feet per hour.

TABLE 2
PROJECT CONSTRUCTION POLLUTANT EMISSIONS (POUNDS/DAY)

Project, Phase	ROG	NO _x	PM ₁₀	PM _{2.5}
Equalization Expansion, Construction	3.24	34.30	1.19	1.12
Nutrient Optimization, Construction	0.6	4.6	0.2	0.2
Combined Total	3.84	38.90	1.39	1.32
BAAQMD Construction Threshold	54	54	82	54
Significant Impact?	No	No	No	No

SOURCE: Construction Duration estimates from OLSD; construction equipment information from ISMND, with the exception of pile driving equipment assumptions based on similar projects at wastewater treatment facilities in San Jose; ESA, *Wet Weather Outfall and Nutrient Optimization Project Addendum to the Initial Study/Mitigated Negative Declaration*, June 2018.

Construction emissions were very similar to those identified in the ISMND and no change in impact status will occur. While some aspects of the physical project were altered, differences in both the overall volume of material disturbed and material hauled were minor and inconsequential. As described in the ISMND, for all projects, the BAAQMD recommends the implementation of its Basic Control Mitigation Measures whether or not construction-related exhaust emissions exceed the applicable significance thresholds. The BAAQMD Basic Control Mitigation Measures were adopted by OLSD as Mitigation Measure AIR-1, and would apply to the proposed project. As indicated in Table 2, the average daily construction exhaust emissions would not exceed the BAAQMD's significance thresholds. Therefore, impacts associated with the potential for construction-related exhaust emissions to result in or contribute to a violation of an air quality standard would be less than significant.

Operation

No new staff would be required to operate the project, therefore there would be no increase in the employee commute trips to the facility. The frequency of material delivery and hauling of residuals would not change. The project would result in no increase of energy use during operations compared with the ISMND project.

Consistency with Air Quality Plan

The BAAQMD-recommended method for determining if a project supports the goals of the current air quality plan is consistency with BAAQMD thresholds of significance. As discussed above, the project would result in less-than-significant construction emissions, and would not result in long-term adverse air quality impacts. Therefore, the project would be considered supportive of the primary goals of the 2017 Clean Air Plan.

The 2017 Clean Air Plan has 85 control measures, more than the 55 included in the 2010 Clean Air Plan. Two of the stationary source control measures are applicable to operation of water pollution control plants: WR1 (Limit GHGs from POTWs [Publicly-Owned Treatment Works]) and WR2 (Support Water Conservation). While both of these measures do not contain specific emissions control strategies, the project would not be inconsistent with these measures as the project would not affect production of recycled water at the WWTP and would not result in

operational greenhouse gas emissions greater than estimated in the ISMND. For these reasons, the project would not be inconsistent with nor hinder implementation of the 2017 Clean Air Plan control measures.

Cumulative Increase in Pollutants

The project would result in less-than-significant impacts associated with construction emissions with mitigation incorporated, and less-than-significant impacts associated with operational emissions of criteria air pollutants. Therefore, the project would not result in a cumulative considerable net increase in any of the criteria pollutants for which the Bay Area is in nonattainment.

Exposure of Sensitive Receptors and Odorous Emissions

The project would not include new onsite sources of air pollutants or odorous emissions during operations (treatment capacity would not change and water would flow to the expanded equalization basin at a similar point in the treatment process), and no new sensitive receptors are located within 1,000 feet of the project site. For these reasons, the project's effects associated with exposure of sensitive receptors to pollutants or odorous emissions would be no greater than those identified in the ISMND and would be less than significant.

The analysis of air quality impacts considers the potential impacts related to emissions of nonattainment pollutants and their precursors. Although ozone, as a secondary pollutant, would not be directly emitted by construction equipment for the proposed project, the ozone precursors ROG and NO_x would be emitted and are therefore, along with particulate matter, the focus of the impact assessment. Given that ozone formation occurs through a complex photo-chemical reaction between NO_x and ROG in the atmosphere with the presence of sunlight, the impacts of ozone are typically considered on a basin-wide or regional basis instead of a localized basis. The health-based ambient air quality standards for ozone are established as concentrations of ozone and not as tonnages of their precursor pollutants (i.e., NO_x and ROG). It is not necessarily the tonnage of precursor pollutants that causes human health effects, but the concentration of the resulting secondary pollutants which are ozone and particulate matter in this case. Because of the complexity of ozone formation and the non-linear relationship of ozone concentration with its precursor gases, and given the state of atmospheric modeling in use at this time, it is infeasible and not scientifically defensible to convert specific emissions levels of NO_x or ROG emitted in a particular area to a particular concentration of ozone in that area. Meteorology, the presence of sunlight, seasonal impacts, and other complex photochemical factors all combine to determine the ultimate concentration and occurrence of ozone.^{3,4}

³ SCAQMD, 2014, Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and Brief of Amicus Curiae. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

⁴ SJVAPCD, 2014. Application for Leave to File Brief of Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party In Interest and Respondent, Friant Ranch, L.P. In the Supreme Court of California. Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno.

As expressed in the *amicus curiae* brief submitted for the *Sierra Club v. County of Fresno* case (*Friant Ranch Case*),^{5,6} the CEQA criteria pollutants significance thresholds from the air districts were set at emission levels tied to the region's attainment status. These emission levels are indexed to stationary pollution sources permitted by the air district to compel the operator to offset their emissions and they are not intended to be correlated to localized human health impacts.

Furthermore, available models today are designed to determine regional, population-wide health impacts, and cannot accurately quantify ozone-related health impacts caused by NO_x or ROG emissions at a project level. Therefore, it is not scientifically defensible to connect the Project-level NO_x emissions to ozone-related health impacts at present.

Conclusion

The project would not result in any new or more significant impacts than those identified in the previously adopted ISMND associated with conflicts with implementation of the applicable air quality plan or violation of air quality standards. **(Less Impact than Previously Approved Project [Less than Significant Impact with Mitigation])**

The project would not result in a cumulatively considerable net increase of criteria air pollutant emissions, additional exposure of sensitive receptors to substantial pollutant concentrations, or create additional objectionable odors affecting a substantial number of people than those identified in the previously adopted ISMND. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

⁵ SCAQMD, 2014, Application of the South Coast Air Quality Management District for Leave to File Brief of Amicus Curiae in Support of Neither Party and Brief of Amicus Curiae. In the Supreme Court of California. *Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno*.

⁶ SJVAPCD, 2014. Application for Leave to File Brief of Amicus Curiae Brief of San Joaquin Valley Unified Air Pollution Control District in Support of Defendant and Respondent, County of Fresno and Real Party In Interest and Respondent, *Friant Ranch, L.P.* In the Supreme Court of California. *Sierra Club, Revive the San Joaquin, and League of Women Voters of Fresno v. County of Fresno*.

Biological Resources

<u>Issues (and Supporting Information Sources):</u>	<u>New Potentially Significant Impact</u>	<u>New Less Than Significant with Mitigation Incorporated</u>	<u>New Less Than Significant Impact</u>	<u>Same Impact as Approved Project</u>	<u>Less Impact than Approved Project</u>
4. BIOLOGICAL RESOURCES — Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Setting

The Oro Loma Wet Weather Equalization and Ecotone Demonstration Project (ISMND project), evaluated in the Oro Loma Wet Weather Equalization and Ecotone Demonstration Project Initial Study/Mitigated Negative Declaration (ISMND), consisted of a multi-purpose wet-weather equalization facility including both a treatment wetland and an upland ecotone slope for polishing of treated wastewater. The ISMND project was completed in 2017 at a fifteen-acre parcel located at 2536 Grant Avenue in San Lorenzo, adjacent to and east of the existing OLSD WWTP. The proposed project site is located within the ISMND project site. To offset impacts to wetlands and salt marsh harvest mouse (*Reithrodontomys raviventris raviventris*) habitat, the ISMND project also included the creation and enhancement of approximately 1.86 acres of on-site salt and freshwater wetlands to serve as mitigation. These mitigation wetlands were

constructed in November 2015 and are located within the ISMND project site, and adjacent to, but outside of, the proposed project site.

A site visit of the proposed project site has not been conducted. Based on a preliminary review of the site using Google Earth, and plans for the ISMND project, it is assumed that the proposed project site consists of the treatment wetlands, access roads, and grassland/ruderal areas along the access roads. The treatment wetlands are comprised of open water with bulrush and cattails. Developed, grassland/ruderal areas, the horizontal levee ecotone slope wetlands, and salt and freshwater mitigation wetlands occur in the vicinity of the project site. It is unlikely that the treatment wetlands and grassland/ruderal areas within the proposed project construction area would support salt marsh harvest mouse as they lack pickleweed and other salt marsh vegetation and are surrounded by developed access roads.

The state and local plan designations relevant to biological resources within and surrounding the project site have not changed since completion of the ISMND. The presence of special-status vegetation communities surrounding the site similarly has not changed since completion of the ISMND. No adopted or approved local or regional conservation plans apply to the project area.

Findings of Previously Adopted ISMND

The ISMND identified less-than-significant impacts with mitigation related to nesting birds, salt marsh harvest mouse, special-status plants, and federally-protected wetlands. Impacts on migratory wildlife corridors, stopover sites, native wildlife nursery sites were determined to be less than significant. The ISMND concluded the project would not conflict with any local policies or ordinances protecting biological resources. The ISMND also concluded that the ISMND project would have no impact related to conflict with the provisions of an approved local or regional conservation plan, and no impact on special-status vegetation communities.

A Biological Assessment (ESA, 2013) was prepared to support Federal Endangered Species Act Section 7 consultation between the USFWS and U.S. Army Corps of Engineers for the ISMND project. The USFWS issued a Biological Opinion for the ISMND project (USFWS, 2014; 08ESMF00-2014-F-0372-1).

The ISMND, Biological Assessment, and Biological Opinion concluded that the federal endangered Ridgway's rail (*Rallus obsoletus obsoletus*) was absent from the ISMND project site. This conclusion was based on the negative survey results from protocol Ridgway's rail surveys conducted along Bockman Canal from 2005 through 2011 (Liu, et al., 2011) and the absence of crucial habitat elements at the site. Subsequent surveys have been conducted along Bockman Canal from 2012 through 2017 and Ridgway's rail have not been observed (McBroom, 2012, 2013, 2014, 2015, 2016, and 2017), so it is assumed that Ridgway's rail continues to be absent from Bockman Canal.

The ISMND, Biological Assessment, and Biological Opinion also concluded that the federal endangered salt marsh harvest mouse had potential to occur at the ISMND project site. The Biological Opinion concluded that saline to brackish wetland habitat provided suitable habitat for salt marsh harvest mouse and any suitable grassland habitat within 323 feet of and contiguous

with suitable wetland habitat was suitable foraging and dispersal habitat for the salt marsh harvest mouse as long as there are no significant barriers to salt marsh harvest mouse dispersal. The USFWS concluded that, for the ISMND project, the uplands on the eastern side of the action area were not considered suitable for the salt marsh harvest mouse because they were more than 323 feet from suitable higher quality wetland habitat at the southern and western edges of the site. These uplands along the eastern end of the site were also across what is an exposed distance of mowed ruderal uplands and a railroad berm, features that reduced the potential for salt marsh harvest mouse dispersal to the eastern side of the site.

Discussion

Direct and Indirect Effects on Candidate, Sensitive, or Special-Status Species

Construction activities would occur within the existing treatment wetlands, access roads, and grassland/ruderal areas and staging would occur within existing developed areas. Construction activities would not occur within suitable habitat for salt marsh harvest mouse; thus, adopted mitigation measures from the ISMND and Biological Opinion measures related to work within suitable salt marsh harvest mouse habitat are assumed to not be applicable.

As disclosed in the ISMND, noise from project construction could adversely affect threatened and endangered species (salt marsh harvest mouse). As indicated in the 2014 Biological Opinion and summarized above, California clapper rails have not been observed at the site (USFWS, 2014).⁷ The Biological Opinion includes conservation measures to address potential displacement of salt marsh harvest mouse from noise and vibration effects. Similar to the ISMND project, the proposed project would create noise during construction, including noise from pile driving. OLSA would comply with applicable conservation measures identified in the Biological Opinion to avoid potential displacement of salt marsh harvest mouse. Applicable mitigation measures are included in Chapter 5.

Effects on Wetlands

In consultation with the U.S. Army Corps of Engineers, as part of the ISMND project, federally protected wetlands were filled, but the impact was offset by onsite wetland creation, restoration, and enhancement. As part of the ISMND project, treatment wetlands, which are assumed to be non-jurisdictional, were also created within the equalization basin. The proposed project would remove the recently-created treatment wetlands, but would not directly alter the adjacent restored wetland areas. Project construction activities could result in pollutant-laden runoff draining to adjacent areas, however. Similar to the ISMND project, and as described on ISMND page 2-44, OLSA would implement site-specific best management practices (BMPs) designed to control erosion, sedimentation and release of hazardous materials associated with construction activity pursuant to the requirements of the State Water Resources Control Board Construction General Permit (Order 2009-0009-DWQ), because work areas would disturb more than one acre. A Storm Water Pollution Prevention Plan (SWPPP) detailing the selected BMPs would be filed with the

⁷ U.S. Department of the Interior, Fish and Wildlife Service, *Biological Opinion on the Proposed Oro Loma Wet Weather Equalization and Ecotone Demonstration Project at the Oro Loma Sanitary District Water Treatment Plant in the Unincorporated Community of San Lorenzo, Alameda County, California*, May 22, 2014.

San Francisco Bay Regional Water Quality Control Board, and implemented during construction. Detailed description of the SWPPP contents is included on ISMND page 2-44. The requirements of the Construction General Permit, including development and implementation of a SWPPP and associated BMPs would be sufficient to reduce the potential construction-related impacts to adjacent wetland areas to less-than-significant levels.

Interference with Movement, Migratory Corridors, or Nursery Sites of Fish or Wildlife Species

The land uses surrounding the proposed project site have not changed since adoption of the ISMND; as described in the ISMND, the project area is heavily industrialized. This commercial character of the project site provides a high baseline disturbance level to which any wildlife species that frequent the project site or surrounding area would be habituated. Birds would experience only a temporary unavailability of onsite habitat during project construction, and ample higher-quality habitat is available in the marshes north and south of the project area. For these reasons, impacts to wildlife movement, migratory corridors or nursery sites would be less than significant.

Conclusion

Under the Project, temporary impacts to salt marsh harvest mouse are considered similar to the approved project and no additional mitigation is required; therefore, there is no change in impact. **(Same Impact as Previously Approved Project [Less than Significant with Mitigation])**

Impacts to nesting resident or migratory birds are considered the same as the approved project and no additional mitigation is required; therefore, there is no change in impact. **(Same Impact as Previously Approved Project [Less than Significant with Mitigation])**

The Project would not substantially affect any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service. **(Same Impact as Previously Approved Project [No Impact])**

The proposed project would not remove, fill, or alter drainage to protected wetland features and therefore would not result in any new or more significant impacts to protected wetland features than those identified in the previously adopted ISMND. **(Less Impact than Previously Approved Project [Less than Significant])**

The proposed project would not result in any new or more significant impacts related to interfering with the movement of any native resident or migratory fish or wildlife corridors, or impeding the use of native wildlife nursery sites. **(Same Impact as Previously Approved Project [Less than Significant])**

The proposed project would not result in any new or more significant impacts related to conflicts with local policies or ordinances protecting biological resources than those identified in the previously adopted ISMND. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

The proposed project would not result in any new or more significant impacts related to conflicts with local, regional, or state conservation plans protecting biological resources than those identified in the previously adopted ISMND. **(Same Impact as Previously Approved Project [No Impact])**

Greenhouse Gas Emissions

<i>Issues (and Supporting Information Sources):</i>	<i>New Potentially Significant Impact</i>	<i>New Less Than Significant with Mitigation Incorporated</i>	<i>New Less Than Significant Impact</i>	<i>Same Impact as Approved Project</i>	<i>Less Impact than Approved Project</i>
7. GREENHOUSE GAS EMISSIONS — Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

The environmental setting relevant to greenhouse gas emissions for the project has not changed since adoption of the ISMND. Setting discussions from the adopted the ISMND for greenhouse gas (GHG) emissions and plans, policies, and regulations adopted for the purpose of reducing greenhouse gases are applicable to the project.

Findings of the Previously Adopted ISMND

The ISMND identified less-than-significant impacts associated with the project related to conflict with plans adopted regarding GHG emissions and generation of GHG emissions.

Discussion

GHG Emissions

Construction

The combustion of diesel fuel to provide power for the operation of various construction equipment results in the generation of GHGs. Construction equipment would generally be similar to those described in the ISMND, with the addition of pile drivers. The ISMND project-specific information such as the types and number of construction equipment used, their horsepower rating, and daily usage in terms of hours per day were applied to the proposed project. The number of days each piece of equipment was used within the construction period of the ISMND was scaled using a factor of two to represent a conservative estimate of the proposed project construction activity. Pile driving equipment assumptions for construction equipment type and its horsepower rating were based on similar projects at wastewater treatment facilities in San Jose.⁸ Pile driving equipment activity parameters are specific to the proposed project.

Carbon dioxide (CO₂) emissions for off-road construction equipment were estimated using OFFROAD2017 emission factors. Emission factors for methane (CH₄) and nitrous oxide (N₂O) were obtained from The Climate Registry (TCR) for diesel fuel combustion in construction

⁸ Pile driving equipment estimates were based on equipment estimates generated for continuous sheet pile installation at the San Jose/Santa Clara Regional Wastewater Facility, at an installation rate of 12 feet per hour.

equipment (Table 13.7 in The Climate Registry, 2017). N₂O and CH₄ emissions were multiplied by their respective global warming potentials (28 and 265) based on the IPCC Fifth Assessment Report, 2014 (AR5) and added to the CO₂ emissions to obtain carbon dioxide equivalent (CO₂e) emissions (IPCC, 2016).

GHG emissions from on-road motor vehicles used during construction were estimated using EMFAC2017 emissions factors. EMFAC provides GHG emission factors for CO₂ and N₂O emissions; CH₄ emission factors for gasoline and diesel combustion were obtained from TCR (Table 13.4, The Climate Registry, 2017). GHG emissions in the form of CO₂e were calculated by multiplying the estimated total miles travelled by project-related worker vehicles and trucks by the GHG emission factors, then multiplying the N₂O and CH₄ emissions by their respective global warming potential, and then adding the CO₂, N₂O, and CH₄ emissions. As mentioned, the active construction days were scaled off of the ISMND. Each worker trip was assumed to be 20 miles round trip. The proposed project haul truck trips were directly dependent on the conservative scaling of the ISMND construction activities. Daily emissions by vehicle class (i.e., light-duty gasoline-fueled trucks and heavy-duty trucks) were estimated using the EMFAC2017 emission factors multiplied by the estimated project-related vehicle trips and the estimated daily mileage traveled by the vehicles.

The total emissions are summarized in Table 3.

TABLE 3
GHG EMISSIONS FROM PROJECT CONSTRUCTION

Source	GHG Emissions expressed as CO ₂ e (metric tons)
Equalization Expansion, Construction	585.34
Nutrient Optimization, Construction	87
Total GHG Emissions	672.34

SOURCE: Construction Duration estimates from OLSD; construction equipment information from ISMND, with the exception of pile driving equipment assumptions based on similar projects at wastewater treatment facilities in San Jose; ESA, *Wet Weather Outfall and Nutrient Optimization Project Addendum to the Initial Study/Mitigated Negative Declaration*, June 2018.

The BAAQMD does not identify a significance threshold for construction-related GHG emissions. However, when the project's construction-related annualized GHG emissions are compared to the BAAQMD's annual threshold for stationary sources of 10,000 metric tons CO₂e, the project's construction-related emissions would remain well below this threshold and would be considered less than significant. Construction emissions were very similar to those identified in the ISMND. While some aspects of the physical project were altered, differences in both the overall volume of material disturbed and material hauled were minor and inconsequential.

Operation

No new staff would be required to operate the project, therefore there would be no increase in the employee commute trips to the facility. No changes to operational emissions are expected due to

no anticipated increase in staff and no change in pump capacity. The project would result in no increase of energy use during operations compared with the ISMND project.

Consistency with GHG Plans, Policies, or Regulations

The project would not result in any temporary or new permanent sources of GHG emissions that would exceed the BAAQMD's CO₂e significance threshold of 10,000 metric tons per year. Since the BAAQMD GHG significance threshold would not be exceeded, the project would not result in a cumulatively considerable increase in GHG emissions that would impair the State's ability to implement AB32.

Conclusion

The project would not result in any new or more severe environmental effects related to GHG emissions, or conflicts with plans, policies, and regulations adopted regarding GHG emissions, than those identified in the previously adopted ISMND. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

Noise and Vibration

<i>Issues (and Supporting Information Sources):</i>	<i>New Potentially Significant Impact</i>	<i>New Less Than Significant with Mitigation Incorporated</i>	<i>New Less Than Significant Impact</i>	<i>Same Impact as Approved Project</i>	<i>Less Impact than Approved Project</i>
3. Noise and Vibration — Would the project:					
a) Exposure of persons to or generation of, noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) For a project located in the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Setting

The nearest sensitive receptors to the project site are residences located approximately 1,300 feet northeast of the project site. The nearest noise sensitive land use identified in the ISMND was a residential community located over 1,600 feet east of the project site. The remainder of the environmental setting relevant to Noise and Vibration has not changed since the adoption of the ISMND.

Findings of Previously Adopted ISMND

The 2013 ISMND identified less-than-significant impacts associated with the project related to noise and vibration. Since the noise and vibration section of the approved ISMND did not account for impact pile driving, the use of an impact hammer or vibratory pile driver during project construction could expose nearby sensitive receptors to higher noise and vibration levels than what were previously reported in the approved ISMND.

Discussion

Noise Levels in Excess of Applicable Standards

Since project construction activities would only occur within the construction noise exempt hours identified in the County of Alameda noise ordinance, the project would result in a less-than-significant impact with respect to exposure of persons to noise levels in excess of standards established in the local general plan or noise ordinance.⁹ The proposed project would not result in any changes to operational activities that were evaluated in the approved ISMND.

Excessive Groundborne Vibration

While vibratory pile installation methods would likely be used to install sheet piles, for purposes of this analysis it is conservatively assumed that an impact hammer would be used. Vibratory pile installation generates less noise than use of an impact hammer. The use of an impact hammer to install sheet piles would be expected to generate the highest vibration levels during project construction. Impact hammers typically generate vibration level of 0.644 peak particle velocity (PPV) (inch/second) at a distance of 25 feet (Federal Transit Administration, 2006). For the purposes of assessing potential vibration impacts on nearby sensitive land uses, the methodology described in Caltrans' Transportation and Construction Vibration Guidance Manual was used (Caltrans, 2018). Using vibration propagation equations found in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment, residences located 1,300 feet from the project site would be exposed to a vibration level of 0.0017 PPV (inch/second) during onsite impact pile driving, which would not exceed the applied human annoyance or building damage thresholds (FTA, 2006). Therefore, impacts related to exposure to offsite sensitive receptors to excessive groundborne vibration would remain less than significant.

Substantial Temporary or Periodic Increase in Ambient Noise Levels Without the Project

Onsite impact pile driving activities would only occur within construction exempt hours identified in the County of Alameda's noise ordinance. According to the Federal Highway Administration (FHWA) Roadway Construction Noise Model, an impact pile driver can generate a one-hour L_{eq} noise level of 88 dBA, assuming a 20 percent usage factor (FHWA, 2006).

The nearest sensitive receptor to the project site is located approximately 1,300 feet north of the project site. Assuming an attenuation rate of 7.5 dB per doubling of distance, the nearest sensitive receptor to the project site would be exposed to a noise level of 53 dBA L_{eq} during onsite impact pile driving.

Although there are no applicable local policies or standards available to judge the significance of short-term daytime construction noise levels, the FTA's Transit Noise and Vibration Impact Assessment has identified a daytime 1-hour L_{eq} level of 90 dBA as a noise level where adverse community reaction could occur at residential land uses (FTA, 2006). Although project-related construction noise levels may be audible at the nearest sensitive receptor locations, they would

⁹ Construction exempt hours are 7:00 a.m. to 7:00 p.m. Monday through Friday and 8:00 a.m. to 5:00 p.m. Saturday and Sunday (Alameda County Code Article 6.60.070 [Exceptions]).

not exceed the 90 dBA L_{eq} threshold, and therefore would not result in a significant impact. The temporary increase in ambient noise levels would cause a less-than-significant impact.

Substantial Permanent Increase in Ambient Noise Levels Without the Project

The proposed changes to the project would not result in any changes to operational activities that were evaluated in the approved ISMND. Since there would be no increase in worker vehicle and haul trips or additional stationary noise sources (e.g., pumps, generators etc.), the project would result in a less-than-significant impact with respect to exposing nearby sensitive receptors to noise levels that would be considered a substantial permanent increase.

Noise Associated with Airports and Air Strips

The WWTP would remain outside the 65 dBA CNEL contour for the Hayward Executive Airport, and hence would be normally acceptable for the proposed uses with respect to noise. There are no private airstrips in the vicinity of the WWTP. Therefore, impacts related to aircraft noise would remain less than significant.

Conclusion

Since project construction activities would only occur within the construction noise exempt hours identified in the County of Alameda noise ordinance, the project would result in a less than significant impact with respect to exposure of persons to noise levels in excess of standards established in the local general plan or noise ordinance. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

Construction of the project would not generate vibrations levels during onsite impact pile driving that would expose nearby sensitive receptors to vibrations levels resulting in human annoyance or building damage. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

The proposed project would not result in any changes operational activities that were evaluated in the approved ISMND. Since there would be no increase in worker vehicle and haul trips or additional stationary noise sources (e.g., pumps, generators etc.), the project would result in a less than significant impact with respect to exposing nearby sensitive receptors to noise levels that would be considered a substantial permanent increase. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

Construction of the project would not generate noise levels during onsite impact pile driving that would expose nearby sensitive receptors to noise levels resulting in temporary or periodic increase in ambient noise levels without the project. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

The WWTP would remain outside the 65 dBA CNEL contour for the Hayward Executive Airport, and hence would be normally acceptable for the proposed uses with respect to noise. **(Same Impact as Previously Approved Project [Less than Significant Impact])**

There are no private airstrips in the vicinity of the WWTP. **(Same Impact as Previously Approved Project [No Impact])**

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CHAPTER 4

Conclusion

The Wet Weather Equalization Expansion Project would result in impacts similar to, or less than, those attributable to the project described in the Wet Weather Equalization and Ecotone Demonstration Project Initial Study/Mitigated Negative Declaration (ISMND).

The analyses and discussion in Chapter 3 do not reflect involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects. There have been no changes in circumstances under which the project is undertaken that would result in new significant environmental impacts or substantially more severe impacts, and no new information has become available that would indicate the potential for new significant impacts or substantially more severe impacts than were discussed in the ISMND. Therefore, no further evaluation is required, and no Subsequent EIR is needed pursuant to CEQA Guidelines Section 15162.

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CHAPTER 5

Mitigation Measures and Mitigation Monitoring and Reporting Program

This chapter includes the mitigation measures that were adopted by the OLSD on February 18, 2014, as part of the previous project to reduce the potentially significant impacts to a less-than-significant level. The previous project mitigation measures were integrated into the previous project, and would apply to the proposed project and be implemented where applicable.

The tables following each measure provide a breakdown of how the mitigation measure would be implemented, who would be responsible, and when it would occur. The tables consist of four column headings which are defined as follows:

- **Implementation Procedure:** If needed, this column provides additional information on how the mitigation measures would be implemented.
- **Monitoring and Reporting Actions:** This column contains an outline of the appropriate steps to verify compliance with the mitigation measure.
- **Monitoring Responsibility:** This column contains an assignment of responsibility for the monitoring and reporting tasks.
- **Monitoring Schedule:** The general schedule for conducting each monitoring and reporting task, identifying where appropriate both the timing and the frequency of the action.

Also included in this Chapter, where relevant, are conservation measures from the Biological Opinion for the previous project (08ESMF00-2014-F-0372-1) that would apply to the proposed project.

Due to differences between the ISMND project and the proposed project, the following mitigation measures do not apply to the proposed project:

- Mitigation Measure BIO-2 (Remove suitable wetland habitat via non-mechanized means)
- Mitigation Measure BIO-3 (Install silt fencing around undisturbed suitable habitat)
- Mitigation Measure BIO-5 (Compensate for impacts to suitable wetland and upland habitat)
- Mitigation Measure BIO-6 (Monitor compensatory wetland and upland habitat areas)
- Mitigation Measure BIO-7 (Survey for rare plants and relocate them onsite, if encountered)
- Mitigation Measure BIO-8 (Compensatory onsite wetland mitigation)

Air Quality

Mitigation Measure AIR-1: Implement BAAQMD Basic Mitigation Measures

OLSD and/or its construction contractors shall implement the following applicable BAAQMD basic control measures:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, and graded areas, and unpaved access roads) shall be watered two times a day.
- All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to a maximum of 15 miles per hour.
- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California Airborne Toxics Control Measure Tile 13, Section 2485 of California of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- Post a publicly visible sign with the telephone number and person to contact at OLSD regarding dust complaints. This person shall respond and take corrective action within 48 hours. The BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall require BAAQMD's Basic Construction Measures be included in contractor bid specifications.	1. OLSD reviews contractor bid documents.	1. OLSD	1. Prior to construction.
2. Contractor implements measures in the program.	2. OLSD documents that measures are being implemented.	2. OLSD	2. During construction and final inspection.

Biological Resources

Mitigation Measure BIO-1: Protection of Nesting Birds

The OLSD shall implement the following measure:

Project construction activities should avoid the nesting season of February 15 through August 31, if feasible. If seasonal avoidance is infeasible, then no sooner than 30 days prior to the start of any project activity a biologist experienced in conducting nesting bird surveys shall survey the project area and all accessible areas within 500 feet. If nesting birds are identified, the biologist shall implement a suitable protective buffer around the nest and no activities shall occur within this buffered area. Typical buffers are 250 feet for songbirds and 500 feet for raptors, but may be increased or decreased according to site-specific, Project-specific, activity-specific considerations such as visual barriers between the nest and the activity, decibel levels associated with the activity, and the species of nesting bird and its tolerance of the activity. Construction activities that are conducted within a reduced buffer shall be conducted in the presence of a qualified full-time biological monitor. The USFWS and/or CDFW would be consulted if the nesting species is considered special-status outside of the nesting season.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with a qualified biologist to conduct pre-construction surveys for nesting birds.	1. OLSD executes contract.	1. Qualified biologist, County.	1. Prior to construction.
2. OLSD and the appropriate regulatory agency shall establish buffer zones, if active nests are observed.	2. OLSD consults with agency.	2. OLSD, regulatory agency.	2. Prior to construction.
3. OLSD shall include in its contractor specifications that buffer zones will be avoided during construction.	3. OLSD documents that measures are being implemented.	3. OLSD	3. During construction.

Mitigation Measure BIO-4: Implement Avoidance Measures during Project Construction

The OLSD shall implement the following measure:

- a. An agency-approved biologist¹ shall be present during all project related activities that may impact salt marsh harvest mouse or its habitat.
- b. Prior to construction, all construction workers shall take part in an agency-approved worker environmental awareness program conducted by the agency-approved biologist. The biologist shall train work crews in standard procedures for identifying and avoiding impacts to salt

¹ The "agency"-approved biologist would be approved by USFWS and CDFW, the federal and state regulatory agencies responsible for implementing endangered species acts, and/or state regulations applicable to Fully-Protected Species.

- marsh harvest mouse. The awareness program will be conducted at the start of construction and thereafter as required for new construction personnel.
- c. If a salt marsh harvest mouse is observed in or near the project area, all construction shall cease until the salt marsh harvest mouse is captured by a Service-approved biologist possessing the appropriate permits and relocated to other suitable habitat on the project site in accordance with a pre-approved Sensitive Species Relocation Plan (SSRP).
 1. A SSRP shall be submitted to and approved by the Service and CDFW prior to the commencement of any project activities.
 - d. All work in the project area shall cease immediately if a salt marsh harvest mouse is observed by any employee or the biological monitor.
 - e. The area beneath vehicles or equipment parked in the project area shall be checked for the presence of salt marsh harvest mouse before being moved, during construction in the roadway, and during movement of staging materials within the entire project site.
 - f. Vehicle speed limits on the project site shall not exceed 10 miles per hour.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with a qualified biologist to be present during construction activities related to salt marsh harvest mouse or its habitat.	1. OLSD executes contract.	1. OLSD	1. Prior to construction.
2. Conduct awareness training for construction personnel.	2. Sign-off on inspection report and/ or MMRP.	2. OLSD	2. Prior to construction.
3. Contractor shall implement required measures.	3. Periodic inspections during construction along the drainage ditch. Sign-off by OLSD that measures are being implemented.	3. OLSD	3. During construction.

Biological Opinion General Conservation Measures

1. Construction vehicle speed limits would be limited to 10 miles per hour within the project site;
2. Stormwater and erosion control BMPs, including silt fencing, hay/straw wattles, covering haul truck loads and stockpiles to contain loose materials, applying water on active construction areas, daily sweeping, and revegetation, to prevent silt runoff to streams and wetlands would be incorporated into the project's Stormwater Pollution Prevention Plan and maintained throughout construction;
3. All equipment would be in good working order; fueling and vehicle maintenance would be completed at the staging areas, located away from storm drains;

4. Debris/trash/litter would be removed from the site daily;
5. All work would be implemented in accordance with dust/emission control and hazardous materials control plans. Emission control would include vehicle and equipment idling restrictions. The District would implement hazardous materials spill control and provide employee spill prevention/response training;
6. Prior to beginning construction, public notice would be provided to local emergency responders, residents, and businesses in the vicinity;
7. Fencing would be installed around the perimeter of the construction sites as necessary to exclude wildlife from the construction area and prevent discharge of excavated material and turbid water from entering Bockman Canal.

Biological Opinion Conservation Measure 3: Conduct a Worker Environmental Awareness Program for Construction Crews

Prior to construction, all construction workers shall take part in a Service-approved worker environmental awareness program conducted by the Service-approved biologist. At a minimum, the biologist shall train work crews in identification of salt marsh harvest mouse and its habitat, the importance of the salt marsh harvest mouse and its habitat, the general measures that are being implemented to conserve the species as they relate to the activity, and the boundaries within which the work will occur. The awareness program will be conducted at the start of construction and thereafter as required for new construction personnel.

Biological Opinion Conservation Measure 4: Monitor during Construction

A Service-approved biologist shall be present during all proposed project related activities that may impact the salt marsh harvest mouse or its habitat. If a salt marsh harvest mouse is observed in or near the project area, all construction shall cease until the salt marsh harvest mouse has left the work area on its own volition and the Service-approved biologist has determined that the salt marsh harvest mouse would not be harassed, injured, or killed. All work in the project area shall cease immediately if a salt marsh harvest mouse is observed by any employee or the biological monitor. The area beneath vehicles or equipment parked in the proposed project area shall be checked for the presence of salt marsh harvest mouse before being moved, during construction in the roadway, and during movement of staging materials within the entire project site. Vehicle speed limits on the project site shall not exceed 10 miles per hour. The Service and California Department of Fish and Wildlife (CDFW) will be notified immediately in the case of a dead or injured salt marsh harvest mouse is found.

Cultural Resources

Mitigation Measure CR-1: Inadvertent Discovery of Cultural Resources

The OLSD shall implement the following measure:

If prehistoric or historic-period archaeological resources are encountered, all construction activities within 100 feet shall halt and the Oro Loma Sanitary District and the U.S. Army Corps of Engineers shall be notified. A Secretary of the Interior-qualified archaeologist shall inspect the findings within 24 hours of discovery. If it is determined that the project could damage a historical resource or a unique archaeological resource (as defined pursuant to the CEQA Guidelines), mitigation shall be implemented in accordance with PRC Section 21083.2 and Section 15126.4 of the CEQA Guidelines, with a preference for preservation in place. Consistent with Section 15126.4(b)(3), preservation in place may be accomplished through planning construction to avoid the resource; incorporating the resource within open space; capping and covering the resource; or deeding the site into a permanent conservation easement. If avoidance is not feasible, a qualified archaeologist shall prepare and implement a detailed treatment plan in consultation with the Oro Loma Sanitary District, the U.S. Army Corps of Engineers, and the affiliated Native American tribe(s), if applicable. Treatment of unique archaeological resources shall follow the applicable requirements of PRC Section 21083.2. Treatment for most resources would consist of (but would not be not limited to) sample excavation, artifact collection, site documentation, and historical research, with the aim to target the recovery of important scientific data contained in the portion(s) of the significant resource to be impacted by the project. The treatment plan shall include provisions for analysis of data in a regional context, reporting of results within a timely manner, curation of artifacts and data at an approved facility, and dissemination of reports to local and state repositories, libraries, and interested professionals.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall contract with an archaeologist meeting the Secretary of the Interior's Standards for professional archaeology to monitor all ground-disturbing activities.	1. OLSD executes contract.	1. OLSD, qualified archaeologist.	1. Prior to and during construction.
2. OLSD shall review construction specifications to ensure procedures for cultural resources discovery are included.	2. OLSD reviews construction specifications.	2. OLSD	2. Prior to construction.
3. In the event subsurface cultural resources are discovered, construction within 50 feet of the find shall be halted and the qualified archaeologist shall be notified.	3. OLSD shall notify the County of the discovery.	3. OLSD	3. During construction.
4. The archaeologist shall complete a final monitoring report.	4. Archaeologist completes report.	4. Qualified archaeologist.	4. Following construction.

Mitigation Measure CR-2: Inadvertent Discovery of Human Remains

The OLSD shall implement the following measure:

In the event of discovery or recognition of any human remains during construction activities, such activities within 100 feet of the find shall cease until the Alameda County Coroner has been contacted to determine that no investigation of the cause of death is required. The Native American Heritage Commission (NAHC) shall be contacted within 24 hours if it is determined that the remains are Native American. The NAHC will then identify the person or persons it believes to be the most likely descendant from the deceased Native American, who in turn would make recommendations to the Oro Loma Sanitary District and the U.S. Army Corps of Engineers for the appropriate means of treating the human remains and any grave goods.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD shall retain a Native American monitor to monitor all ground-disturbing activities.	1. OLSD executes contract.	1. OLSD Native American Monitor.	1. Prior to and during construction.
2. OLSD shall review construction specifications to ensure procedures for human remains discovery are included.	2. OLSD reviews construction specifications.	2. OLSD	2. Prior to construction
3. In the event human remains are discovered, construction in the area shall be halted and OLSD shall consult the County Coroner.	3. The contractor shall notify City of the discovery.	3. OLSD	3. During construction
4. OLSD shall review construction specifications to ensure procedures for human remains discovery are included.	4. OLSD reviews construction specifications.	4. OLSD	4. Prior to construction

Hazards and Hazardous Materials

Mitigation Measure HAZ-1

The OLSD shall implement the following measure:

Prior to commencement of construction activities, the OLSD shall prepare and implement a Soil Management Plan as approved by the San Francisco Bay Regional Water Quality Control Board. The Soil Management Plan shall be prepared by a qualified environmental consulting firm and shall include protocols for all earthwork activities that might encounter suspected contamination, emergency contact information, and minimum personal protective equipment requirements for onsite construction workers. Any suspected contaminated subsurface materials shall be segregated, covered, and profiled for appropriate offsite disposal in accordance with California Occupational Safety and Health Administration requirements and the receiving facilities requirements. The San Francisco Bay Regional Water Quality Control

Board shall be notified of any suspected contamination and OLSD shall only proceed with earthwork activities following direction from the San Francisco Bay Regional Water Quality Control Board or local Certified Unified Program Agency. Any required further excavation as directed by the overseeing agency shall be completed prior to recommencement of construction.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD includes procedures in the event that contaminated soils are identified in construction specifications.	1. OLSD reviews construction specifications.	1. OLSD	1. Prior to construction.
2. Contractor implements measures in the program.	2. OLSD documents that measures are being implemented.	2. OLSD	2. During construction.

Mitigation Measure HAZ-2: FAA Courtesy Notice

The OLSD shall implement the following measure:

Prior to commencement of construction activities, the OLSD shall provide plans to the FAA for review in accordance with 14 CFR Part 77.

Implementation Procedure	Monitoring and Reporting Actions	Monitoring Responsibility	Monitoring Schedule
1. OLSD to prepare an FAA Courtesy Notice.	1. OLSD to document submittal.	1. OLSD	1. Prior to construction.

APPENDIX A

Air Quality

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**Oro Loma Demonstration - Preliminary Design Construction Emissions Summary
Wet Weather Equalization Expansion Project**

Summary of 2019 Criteria Pollutants Emissions

Emissions Source	Average Daily Construction Emissions (pounds/day)			
	ROG	NOx	PM10	PM2.5
Onsite Construction - All Phase	1.42	13.54	0.68	0.62
Offsite Vehicle Trips - All Phase	1.81	20.77	0.52	0.49
Total (pounds/day)	3.24	34.30	1.19	1.12
BAAQMD Significance Threshold	54	54	82	54

Assumes All Phases concurrent over the 40 weeks working 5 days/week

Summary of 2019 GHG Construction Emissions

Emissions Source	CO2e
	metric tons/yr
Onsite Construction - All Phase	167.59
Offsite Vehicle Trips - All Phase	417.75
Total (metric tons/year)	585.34
BAAQMD Significance Threshold	1,100

2019 Off-road Equipment Emissions

Project Duration	40	weeks
Workdays/week	5	days/week

Off-road Construction Equipment Criteria Pollutant Emission Factors

Equipment (hp)	Offroad HP Range	Equipment Emission Rates (lb/hour)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	0-50	0.02	0.13	0.01	0.01
Dozer (200 hp)	176-250	0.13	1.27	0.06	0.06
Excavator (260 hp)	251-500	0.05	0.49	0.02	0.01
Front-end Loader (80 hp)	51-120	0.03	0.25	0.02	0.02
Onsite Truck (200 hp)	176-250	0.06	0.53	0.02	0.02
Sheepsfoot Compactor (150 hp)	121-175	0.06	0.62	0.03	0.03
Water Truck (150 hp)	121-175	0.05	0.38	0.02	0.02
Sheet Pile Driving Equipment	121-175	0.06	0.62	0.03	0.03

Notes: Emission factors are based on CARB's Off-road emissions inventory database (see Off-road Output). A factor of 1.26639 was applied to THC to obtain ROG based on CARB (2000). A factor of 0.92 was applied to PM10 to obtain PM2.5 based on SCAQMD (2006).

All Phases Average Daily Onsite Criteria Pollutant Exhaust Emissions

Equipment	Total Hours	Total Emissions (pounds/day)			
		ROG	NOx	PM10	PM2.5
Mini Excavator (30 hp)	434	8.71	54.83	3.27	3.01
Dozer (200 hp)	928	116.21	1,181.68	57.62	53.01
Excavator (260 hp)	261	12.24	128.42	4.17	3.84
Front-end Loader (80 hp)	261	6.74	64.65	4.32	3.97
Onsite Truck (200 hp)	261	14.89	138.27	5.51	5.07
Sheepsfoot Compactor (150 hp)	588	35.41	364.02	19.17	17.64
Water Truck (150 hp)	1,820	82.18	687.72	36.38	33.47
Sheet Pile Driving Equipment	142	8.55	87.91	4.63	4.26
Total Emissions (pounds) =		284.94	2,707.50	135.06	124.26
Average Daily Emissions (pounds/day)=		1.42	13.54	0.68	0.62

GHG Emissions and Fuel Factors for Diesel Equipment

Fuel	CO2 (g/gal)	N2O (g/gal)	CH4 (g/gal)
Diesel Fuel	10,210.00	0.26	0.58

Notes: Emission factors obtained from TCR, 2011, Tables 13.1 and 13.6.

Equipment Type (hp)	Offroad HP Range	Fuel Consumption (Liter/hr)	Fuel Consumption (gal/hr)
Mini Excavator (30 hp)	0-50	2.97	0.78
Dozer (200 hp)	176-250	16.42	4.33
Excavator (260 hp)	251-500	24.51	6.47
Front-end Loader (80 hp)	51-120	6.01	1.58
Onsite Truck (200 hp)	176-250	15.70	4.14
Sheepsfoot Compactor (150 hp)	121-175	12.35	3.26
Water Truck (150 hp)	121-175	11.83	3.12
Sheet Pile Driving Equipment	121-175	12.35	3.26

Notes: Fuel consumption factors based on on CARB's Off-road emissions inventory database (see Off-road Output).

All Phase Onsite GHG Construction Emissions

Equipment	Total Hours	Total Emissions (metric tons)			
		CO2	N2O	CH4	CO2e
Mini Excavator (30 hp)	434	3.48	0.00	0.00	3.51
Dozer (200 hp)	928	41.03	0.00	0.00	41.40
Excavator (260 hp)	261	17.22	0.00	0.00	17.38
Front-end Loader (80 hp)	261	11.03	0.00	0.00	11.13
Onsite Truck (200 hp)	261	11.03	0.00	0.00	11.13
Sheepsfoot Compactor (150 hp)	588	19.57	0.00	0.00	19.74
Water Truck (150 hp)	1,820	58.00	0.00	0.00	58.53
Sheet Pile Driving Equipment	142	4.72	0.00	0.00	4.77
Total Construction Exhaust Emissions		166.08	0.00	0.01	167.59

2019 On-road Criteria Pollutant Emissions

Project Duration	40	weeks
Workdays/week	5	days/week

Emission Factors

Vehicle Type	Units	Running Exhaust Emission Factors			
		ROG	NOx	PM10	PM2.5
Light duty truck (LDT2 gas)*	g/mile	0.02	0.11	0.00	0.00
Light duty truck (LDT2 gas)	lb/mile	0.00	0.00	0.00	0.00
Heavy duty truck (T7 diesel)*	g/mile	0.79	9.05	0.23	0.22
Heavy duty truck (T7 diesel)	lb/mile	0.00	0.02	0.00	0.00

* Emission factor obtained online from EMFAC 2017, for the Bay Area, average model years, and average speed.

All Phase Worker and Material Delivery/Off-haul Trips Criteria Pollutant Emissions

Vehicle Type	Trips/year	miles/trip	ROG	NOx	PM10	PM2.5
Light duty truck (gas)	2,792	20	2.64	13.89	0.20	0.18
Heavy duty truck (diesel) Fill Delivery	6,917	30	359.72	4139.57	103.27	98.80
Maximim Annual Emissions (pounds/year)			362.36	4153.46	103.47	98.99
Average Day Emissions (lbs/day)			1.81	20.77	0.52	0.49

All trips per day are round-trips. The light-duty truck trips represent employee commute trips. Heavy duty truck trips represent offhaul and fill.

On-road GHG Emissions

Emission Factors

Vehicle Type	Running Exhaust Emission Factors		
	(pounds/mile)		
	CO2**	CH4***	N2O***
Light duty truck (gas)	0.8004	0.0001	0.0001
Heavy duty truck (diesel) Fill Delivery	4.2119	0.0000	0.0000

** Emission factor obtained online from EMFAC 2011, for the Bay Area, average model years, and average speed.

*** California Climate Action Registry, General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Tables C.3 and C.6.

Phase 1 Worker and Material Delivery/Off-haul Trips GHG Emissions

Vehicle Type	Trips/year	miles/trip	CO2	CH4	N2O	CO2e
Light duty truck (gas)	2,792	20	20.27	0.00	0.00	20.97
Heavy duty truck (diesel) Fill Delivery	6,917	30	396.43	0.00	0.00	396.78
Total (metric tons)	NA	NA	416.71	0.00	0.00	417.75

All trips per day are round-trips. The light-duty truck trips represent employee commute trips. Heavy duty truck trips represent offhaul and fill.

Notes: 0.907194 metric tons = 1 ton; 2000 pounds = 1 ton.
Global Warming Potential for CH4 = 23; GWP for N2O = 296.

Gasoline emission factors for GHG

0.0563 g CH4/mile (CCAR, 2009)
0.03639 g NO2/mile (CCAR, 2009)

Diesel emission factors for GHG (CCAR, 2009)

0.0048 g CH4/mile (CCAR, 2009)
0.0051 g NO2/mile (CCAR, 2009)

Reference:

California Climate Action Registry, General Reporting Protocol, Reporting Entity-Wide Greenhouse Gas Emissions, Version 3.1, January 2009. Tables C.3 and C.6.

Equipment and Trips Assumptions

Equipment information developed for the ISMND project were used to estimate emissions for the proposed project. Project-specific phase details have not been developed for the proposed project; phases shown here are for the ISMND project

User Defined Value
Calculated Value
2014-15 input that was applied a factor of 2x

Assumptions			
Dates of Construction	2019		
Onsite Soils Disposal Distance	.2 miles		
Haul In (Import) Distance	15 miles		
Soil Density	100 lbs/ft ³		
	Size Truck	Trips per day	CY/day
Earth Moved/Day for Stockpiling	10	84	840
Earth Moved/Day for Import/Fill	15	84	1260
	Well Length (ft)	Length (ft) per hr	ft/day
Pile Driving	1700	12	84

Rough Grading Excavation & Offhaul									
<i>offroad basis</i>									
Phase (from 2014-15 Project; does not align with 2019)	Phase Description (from 2014-15 Project; does not align with 2019 except the addition of pile driving)	Cut (CY) ASSUME ALL STOCKPILED	Fill (CY) ASSUME ALL IMPORTED	TOTAL Stockpile & Import (CY)	Total Construction Duration	Duration of Earth Moving for Cut (Days)	Duration of Earth Moving for Fill (Days)	% of work done by Dozer/Scraper vs. Excavator	Pile Driving (hr)
1	Earthwork and Restoration for Compensatory Wetlands	18,852	0	18,852	24	23	1	75%	0
2A	Earthwork for 1 st Lift of Containment Berm and Entire Ecotone	52,562	0	52,562	63	63	0	50%	0
2B	Earthwork for 1 st Lift of Containment Berm and Entire Ecotone	0	77,472	77,472	62	0	62	100%	0
3	Ecotone Revegetation	0	0	0	0	0	0	0%	0
4	Piping and Process Work at WWTP	0	0	0	12	0	0	0%	0
5	Earthwork for 2 nd Lift of Containment Berm	0	26,000	26,000	21	0	21	100%	0
6	Site Restoration	0	0	0	0	0	0	0%	0
	Pile Driving Work	0	0	0	20	0	0	0%	142
Total		71,134	103,752	174,886	260	86	84		142

Phases 1 through 4 would occur in 2014, and the piping and process work at the WWTP would occur simultaneously with the earthwork for the containment berm and ecotone construction. So 2014 work days equal 12+32+31+14 = 89.

Additional permanent employees	0	No operational changes
Additional permanent equipment	4 pumps @ 2hp each	
Electricity Demand	2hp - 24 hrs/day	

All Import material will be dumped by haul trucks, and then dozer spreading, and then compacted by sheepsfoot, and a pass with water truck
 Regarding cut material, top couple feet by scraper (cut, transport, and place) and then rest by excavator cut, placed onto stockpile, front end loader picking it up and placing it on truck
 Water trucks operating constantly when filling
 Mini excavator/backhoe for trenching

Equipment and Trips Assumptions

Equipment information developed for the ISMND project were used to estimate emissions for the proposed project. Project-specific phase details have not been developed for the proposed project; phases shown here are for the ISMND project

Rough Grading Equipment Schedule				
	hp	hours/day	Other	Other (units)
CAT 303 Mini Excavator	30	7		
CAT Front End Loader	90	7		
CAT 336 Excavator	260	7	80000	lbs
CAT D6 Dozer	200	7	44000	lbs
Bobtail Water Trucks	150	7	2000	gallon
Hand Equipment		7		saws, line trimmer, pneumatic tools, hand compactor, etc
Pile Driving Equipment	172	7		

offroad basis		offroad basis		offroad basis		offroad basis		offroad basis		onroad basis		onroad basis	
CAT 303 Mini Excavator (hrs)	CAT D6 Dozer (hrs)	CAT 336 Excavator (hrs)	CAT Front End Loader (hrs)	10 CY Truck (hrs)	15 CY Truck (hrs)	Sheepsfoot (hrs)	Bobtail Water Trucks (hrs)	Hand Equipment (hrs)	Workers on Site	Worker Vehicle Trips	Total Truck Trips (Onsite Stockpile)	Total Truck Trips (Import)	
0	126	40.25	40.25	40.25	2	7	168	0	0	230	483	19	
0	220.5	220.5	220.5	220.5	0	0	441	441	0	630	2,646	0	
0	434	0	0	0	430	434	434	0	0	620	0	5,165	
0	0	0	0	0	0	0	196	0	0	260	0	0	
294	0	0	0	0	0	0	294	0	0	420	0	0	
0	147	0	0	0	144	147	147	0	0	210	0	1,733	
140	0	0	0	0	0	0	140	0	0	200	0	0	
0	0	0	0	0	0	0	0	0	0	202	0	0	
434	928	261	261	261	576	588	1,620	441	80	2,752	3,129	6,917	

EMFAC Output

Calendar Year 2019

Vehicle	FUEL	MDLYR	SPEED	POP	VMT	TRIPS
Type			(Miles/hr)	(Vehicles)	(Miles/day)	(Trips/day)
LDT2	GAS	AllMYr	AllSpeeds		32,131,941	
T7 single construction	DSL	AllMYr	AllSpeeds		118,780.527	

Vehicle	FUEL	MDLYR	SPEED	ROG_RUNEX	TOG_RUNEX	NOX_RUNEX	CO2_RUNEX (Pavley I+LCFS)	PM10_RUNEX
Type			(Miles/hr)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)	(gms/mile)
LDT2	GAS	AllMYr	AllSpeeds	0.021	0.031	0.113	363.044	0.002
T7 single construction	DSL	AllMYr	AllSpeeds	0.786	0.895	9.049	1,910.496	0.226

Vehicle	FUEL	MDLYR	SPEED	PM2_5_RUN EX	SOX_RUNEX
Type			(Miles/hr)	(gms/mile)	(gms/mile)
LDT2	GAS	AllMYr	AllSpeeds	0.001	0.004
T7 single construction	DSL	AllMYr	AllSpeeds	0.216	0.018

Off-road Output

Calendar Year	Air Basin	Equipment Class	Equipment Type ID	Equipment Type	Horsepower	Scen BSFC	Fuel Consumption (Liter/hr)*	Scen NOx	NOx (lbs/hr)	Scen PM	PM (lbs/hr)	Scen HC	HC (lbs/hr)	Scen Activity
2019	SF	Construction and Mining	14	Excavators	50	1,492,088	2.97	16.91	0.13	1.01	0.01	2.12	0.02	267,720
2019	SF	Construction and Mining	14	Excavators	120	1,942,052	6.06	19.83	0.23	1.24	0.01	1.58	0.02	170,962
2019	SF	Construction and Mining	14	Excavators	175	4,083,729	10.93	31.06	0.31	1.50	0.02	2.50	0.03	199,455
2019	SF	Construction and Mining	14	Excavators	250	5,186,372	16.33	34.94	0.41	1.06	0.01	2.39	0.03	169,479
2019	SF	Construction and Mining	14	Excavators	500	8,622,010	24.51	46.22	0.49	1.50	0.02	3.48	0.04	187,693
2019	SF	Construction and Mining	17	Off-Highway Trucks	50	59,512	2.37	0.61	0.12	0.06	0.01	0.13	0.02	13,426
2019	SF	Construction and Mining	17	Off-Highway Trucks	120	72,435	6.41	0.96	0.32	0.07	0.02	0.10	0.03	6,026
2019	SF	Construction and Mining	17	Off-Highway Trucks	175	1,402,355	11.83	11.95	0.38	0.63	0.02	1.13	0.04	63,258
2019	SF	Construction and Mining	17	Off-Highway Trucks	250	2,881,651	15.70	25.96	0.53	1.03	0.02	2.21	0.05	97,916
2019	SF	Construction and Mining	17	Off-Highway Trucks	500	12,199,516	28.02	97.21	0.84	3.53	0.03	7.93	0.07	232,354
2019	SF	Construction and Mining	18	Other Construction Equipment	50	333,814	3.46	4.66	0.18	0.39	0.02	0.85	0.03	51,507
2019	SF	Construction and Mining	18	Other Construction Equipment	120	1,047,240	6.63	15.89	0.38	1.19	0.03	1.43	0.03	84,279
2019	SF	Construction and Mining	18	Other Construction Equipmen	175	569,798	12.35	7.62	0.62	0.40	0.03	0.59	0.05	24,617
2019	SF	Construction and Mining	18	Other Construction Equipmen	250	730,629	17.76	8.37	0.76	0.31	0.03	0.54	0.05	21,954
2019	SF	Construction and Mining	18	Other Construction Equipmen	500	2,491,192	29.20	21.24	0.93	0.76	0.03	1.44	0.06	45,520
2019	SF	Construction and Mining	23	Rubber Tired Dozers	50	37,275	3.57	0.45	0.16	0.04	0.01	0.10	0.04	5,573
2019	SF	Construction and Mining	23	Rubber Tired Dozers	120	176,696	6.40	3.96	0.54	0.34	0.05	0.42	0.06	14,728
2019	SF	Construction and Mining	23	Rubber Tired Dozers	175	147,067	11.61	3.31	0.98	0.19	0.06	0.28	0.08	6,758
2019	SF	Construction and Mining	23	Rubber Tired Dozers	250	153,431	16.42	3.18	1.27	0.15	0.06	0.25	0.10	4,986
2019	SF	Construction and Mining	23	Rubber Tired Dozers	500	1,760,115	27.85	31.96	1.90	1.47	0.09	2.46	0.15	33,720
2019	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	50	1,258,863	3.02	15.94	0.14	1.14	0.01	2.63	0.02	222,218
2019	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	120	20,196,519	6.01	222.47	0.25	14.85	0.02	18.31	0.02	1,794,561
2019	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	175	3,494,293	10.29	29.50	0.33	1.48	0.02	2.37	0.03	181,250
2019	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	250	2,034,510	14.70	19.27	0.52	0.62	0.02	1.24	0.03	73,837
2019	SF	Construction and Mining	28	Tractors/Loaders/Backhoes	500	2,714,647	22.94	19.25	0.61	0.67	0.02	1.40	0.04	63,153

BSFC: brake-specific fuel consumption (pounds per year); base emissions are in tons per year; base activity is hours per year.

*Assumes there is 1.874 pounds/liter of diesel