Appendix B

Air Quality and Greenhouse Gas Emissions Estimates

Memorandum

Date: April 16, 2018

To: Alnus Ecological

From: Horizon Water and Environment, LLC

Project: Butano Creek Channel Reconnection and Resilience Project

Subject: Air Quality Effects Assessment

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1. Purpose of Memorandum

The Butano Creek Channel Reconnection and Resilience Project (Project) proposes to restore and enhance the functions of aquatic resources in Butano Creek, Butano Marsh, and Pescadero Lagoon through implementation of various construction activities as well as post-construction maintenance activities. The purpose of this memorandum is to evaluate existing air quality conditions, provide a preliminary analysis of potential Project-related effects pertaining to air quality, including criteria pollutants, toxic air contaminants, and odors, and, as necessary, recommend measures that would avoid or minimize potential adverse effects. The memorandum covers Clean Air Act compliance, particularly in relation to the applicable air quality-related statewide and local rules and regulations, as well as California Environmental Quality Act (CEQA) compliance. As described in additional detail below, the local air district is the Bay Area Air Quality Management District (BAAQMD), which is the regulatory agency responsible for assuring that national and state ambient air quality standards are attained and maintained in the San Francisco Bay Area Air Basin (SFBAAB).

2. Project Need and Overview

The Project is located along Butano Creek within the Butano Marsh, the southern portion of the Pescadero Marsh Natural Preserve which is located near the Pacific Coast of San Mateo County and just west of the community of Pescadero. Butano Creek is the largest tributary to Pescadero Creek. It drains from the Santa Cruz Mountains through forested and agricultural land, crosses under Pescadero Creek Road and into the Butano Marsh before its confluence with Pescadero Creek, which then flows to the Pacific Ocean. Under current conditions, large portions of Butano Creek no longer exist due to sediment accumulation that has nearly filled the channel to the top of its banks. Vegetation has also established on top of this accumulated sediment, which creates nearly impassable conditions for both anadromous fish and other native fish species and has contributed to nearly annual fish kills when the Pescadero Lagoon breaches.

The Project would provide multiple benefits and address critical fish passage, water quality, and flood risk issues affecting Butano Creek and the Pescadero community. Specifically, the Project would restore and enhance connectivity of Butano Creek and Butano Marsh to Pescadero Lagoon to re-establish fish passage between the Butano Marsh and freshwater portions of the Butano Creek watershed by

dredging sediment from Butano Creek and reusing the sediment for habitat enhancement in low-lying areas of Butano Marsh. The Project is expected to reduce flooding along Pescadero Creek Road, while improving water quality conditions and the likelihood of salmonid survival.

For the purposes of this analysis, the Project area includes all areas of the Project's construction activities including staging areas and access points along Pescadero Creek Road, Butano Channel, Butano Marsh, Butano Creek, and the area upstream of Pescadero Creek Road on open space lands and agricultural land. All of San Mateo County, including all of the Project area, is within the SFBAAB, and therefore would be considered in relation to potential impacts on the air quality of the SFBAAB.

3. Environmental and Regulatory Setting

3.1 Regulatory Setting

Federal and State Regulations

The Clean Air Act is implemented by the U.S. Environmental Protection Agency (USEPA) and sets ambient air limits, the National Ambient Air Quality Standards (NAAQS), for six criteria pollutants: particulate matter of aerodynamic radius of 10 micrometers or less (PM_{10}), particulate matter of aerodynamic radius of 2.5 micrometers or less ($PM_{2.5}$), carbon monoxide (CO), nitrogen dioxide (NO_2), ground-level ozone, and lead. Of these criteria pollutants, particulate matter and ground-level ozone pose the greatest threats to human health.

The California Air Resources Board (CARB) sets standards for criteria pollutants in California that are more stringent than the NAAQS and include the following additional contaminants: visibility-reducing particles, hydrogen sulfide, sulfates, and vinyl chloride. USEPA and CARB regulate various stationary sources, area sources, and mobile sources. USEPA has regulations involving performance standards for specific sources that may release toxic air contaminants (TACs), known as hazardous air pollutants (HAPs) at the federal level. In addition, USEPA has regulations involving emission criteria for off-road sources such as emergency generators, construction equipment, and vehicles. CARB is responsible for setting emission standards for vehicles sold in California and for other emission sources, such as consumer products and certain off-road equipment. CARB also establishes passenger vehicle fuel specifications.

Air District Plans and Regulations

As described above, San Mateo County and the Project area are located within the SFBAAB, which is managed by the BAAQMD. The BAAQMD adopts and enforces rules and regulations, issues air quality permits for equipment that emits air pollutants, and monitors air quality and meteorological conditions throughout the SFBAAB. The BAAQMD has the responsibility to develop and implement strategies to attain the applicable federal and state standards. The SFBAAB attains national and state standards for four of the six criteria pollutants: lead, carbon monoxide, sulfur dioxide and nitrogen dioxide (BAAQMD 2017a). However, the SFBAAB is a designated state and federal non-attainment area for ozone and PM2.5, and a state nonattainment area for PM_{10} (BAAQMD 2018a). As such, the BAAQMD has prepared the *2017 Clean Air Plan: Spare the Air, Cool the Climate* (2017 Clean Air Plan) which focuses on two goals: protecting public health and protecting the climate. The 2017 Clean Air Plan includes a control strategy related to stationary source, mobile source, transportation control, land use and local impact,

energy and climate, and additional measures to control ozone and its precursors (reactive organic gases (ROG) and nitrogen oxides (NOx)), PM_{10}, $PM_{2.5}$, and toxic air contaminants (TACs) (BAAQMD 2017b).

For ozone precursor management, the BAAQMD has measures identified in the 2017 Clean Air Plan and the Bay Area 2005 Ozone Strategy, which includes stationary-source control measures to be implemented through BAAQMD regulations; mobile-source control measures to be implemented through incentive programs and other activities; and transportation control measures to be implemented through transportation programs in cooperation with the Metropolitan Transportation Commission (MTC), local governments, transit agencies, and other agencies (BAAQMD 2006).

For PM emissions, the BAAQMD has developed various rules, programs, and measures to identify and control sources of PM, including general PM emission requirements, a Winter Spare the Air program, and control measures identified in the 2017 Clean Air Plan (BAAQMD 2017b, Spare the Air 2018). The 2017 Clean Air Plan includes a variety of control measures to reduce PM emissions, including but not limited to expanding the BAAQMD's fugitive dust visible emissions limits to a wider array of sources, reducing diesel particulate matter (DPM) emissions from emergency generators, and developing a rule to prevent mud/dirt track-out from construction and other sites (BAAQMD 2017b).

The BAAQMD supports incentive programs to reduce criteria pollutant emissions within the district and has established rules and permitting requirements. The Project may be subject to the following BAAQMD rules:

- Regulation 2 Permits: outlines the air permitting program including exemptions and sources needing permitting
    - Regulation 2, Rule 1 – Permits General Requirements outlines permitting requirements and exemptions.
    - Regulation 2, Rule 2 – New Source Review outlines permitting process for new sources.
    - Regulation 2, Rule 5 – New Source Review of Toxic Air Contaminants outlines guidance for evaluating TAC emissions and their potential health threats.
- Regulation 6, Rule 1 – Particulate Matter restricts emissions of PM.
- Regulation 9, Rule 8 – Stationary Internal Combustion Engines limits emissions of NO_X and CO from stationary internal combustion engines of more than 50 horsepower.

TACs are air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations. Hundreds of different types of TACs exist, with varying degrees of toxicity. Many TACs are confirmed or suspected carcinogens or are known or suspected to cause birth defects or neurological damage. For some chemicals, such as carcinogens, no threshold exists below which exposure can be considered risk free. Examples of TAC sources associated with the Project are fossil fuel combustion sources. On-road mobile sources of diesel emissions and construction equipment account for most of the cancer risk associated with TACs in the Bay Area (BAAQMD 2017b). Measures identified

in the plans described above that reduce DPM, the most common TAC, would be applicable to the Project.

In addition to the air quality management plans, rules, and regulations discussed above, the BAAQMD released a CEQA Air Quality Guidelines (BAAQMD 2017b) document in May 2017 to assist lead agencies in evaluating air quality impacts of projects and plans proposed in the SFBAAB. The CEQA Air Quality Guidelines replace previous versions including the 2010 guidelines and provides BAAQMD-recommended procedures for evaluating potential air quality impacts during the environmental review process consistent with CEQA requirements. Additional information on the guidelines and applicable significance thresholds are discussed below in Section 3.3, *Methodology*.

Additional Local Plans and Regulations

The County of San Mateo's General Plan Energy and Climate Change Element (County of San Mateo 2013) includes goals and policies to reduce greenhouse gas emissions that may indirectly or directly also reduce potential criteria air pollutant emissions. Applicable policies to the proposed Project include:

> **Goal 5:** Encourage the use of clean, low-emissions vehicles and equipment.
>
> Policy 5.2: Promote the voluntary transition to clean and low-emissions outdoor equipment through programs and plan review.
>
> *Implementing Strategy 5.2B:* Support both the use of low-emissions construction equipment and reduced equipment idling in construction activities through the plan review process, such as through permit requirements or conditions of approval.

For development activities in the Coastal Zone, the County of San Mateo's Local Coastal Program (LCP) document would also be applicable. The County has compiled relevant policies that guide development in the Coastal Zone in the LCP to ensure that all development in the unincorporated coastal areas of San Mateo County comply with the State Coastal Act. Policies in the LCP that may be applicable to the proposed Project are related to minimizing dust and odors from non-agricultural development to persons or property off the development site (Policy 8.18, Development Design).

3.2 Environmental Setting

Air Pollutants

The primary air pollutants of concern, their main man-made sources, and their effects on human health are summarized in Table 1 below.

Table 1. Summary of Criteria Air Pollutants

Criteria Air Pollutants and Precursors	Criteria Air Pollutant Descriptions	Major Man-Made Sources	Human Health and Other Effects
Ozone	Ozone is a major component of smog. Ozone is a reactive gas consisting of three oxygen atoms, and is colorless or bluish. It is formed by a chemical reaction between reactive organic gases (ROG) and nitrous oxides (NOx) in the presence of sunlight.	Motor vehicle exhaust industrial emissions, gasoline storage and transport, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages natural ecosystems such as forests, foothill communities, and agricultural crops, as well as some human-made materials, such as rubber and plastics.
ROG	ROG (also known as volatile organic compounds (VOCs)) are hydrocarbon compounds that exist in the ambient air.	See ozone sources.	ROGs contribute to the formation of smog and/or may themselves be toxic.
NOx	Nitrogen oxides (NO_X) are a family of gaseous nitrogen compounds and are precursors to the formation of ozone and PM. NO_2, the major component of NO_X, is a reddish-brown gas that is toxic at high concentrations.	NO_X results primarily from the combustion of fossil fuels under high temperature and pressure. Fuel combustion, primarily from on-road and off-road motor vehicles, and industrial sources are the major sources of this air pollutant.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Contributes to global warming, and nutrient overloading which deteriorates water quality. Causes brown discoloration of the atmosphere.
PM_{10}	PM is a complex mixture of extremely small particles and liquid droplets. PM is made up of multiple components, including acids, organic chemicals, metals, and soil or dust particles. Particulate matter of aerodynamic radius of 10 micrometers or less.	Some particles are emitted directly; others are formed in the atmosphere when other pollutants react. Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Particle size is directly linked to the potential for causing health problems. These particles pass through the throat and nose and are deposited in the thoracic region of the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects.
$PM_{2.5}$	Particulate matter of aerodynamic radius of 2.5 micrometers or less (PM2.5).	Found in smoke and haze. Similar sources as PM_{10}.	$PM_{2.5}$ health effects are similar to PM_{10}; however, $PM_{2.5}$ penetrates even more deeply into the thoracic and alveolar regions of the lungs than PM_{10}.
CO	CO is an odorless colorless gas that is highly	Formed when carbon in fuel is not burned completely; a	CO binds with hemoglobin, the oxygen-carrying protein in

Criteria Air Pollutants and Precursors	Criteria Air Pollutant Descriptions	Major Man-Made Sources	Human Health and Other Effects
	toxic.	component of motor vehicle exhaust. Ambient CO concentrations normally are considered a localized effect and typically correspond closely to the spatial and temporal distributions of vehicular traffic, forming pollutant hot spots. CO concentrations are also influenced by wind speed and atmospheric mixing.	blood, and reduces the ability of blood to deliver oxygen to vital tissues, affecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
Lead	A metal found naturally in the environment as well as in manufactured products.	Historically, major sources of lead emissions have been mobile and industrial sources. Ambient concentrations decreased dramatically with use of unleaded fuels.	Lead poisoning can cause loss of appetite, weakness, apathy, miscarriage; lesions of the neuromuscular system, circulatory system, brain, and gastrointestinal tract.
TACs	Air pollutants that may lead to serious illness or increased mortality, even when present in relatively low concentrations.	TAC sources are commonly fossil fuel combustion sources. Sources of TACs include stationary sources, area-wide sources, and mobile sources.	Many TACs are confirmed or suspected carcinogens or are known or suspected to cause birth defects or neurological damage.
Source: CAPCOA 2018, BAAQMD 2017a			

SFBAAB – San Mateo County

As described above, the Project is primarily located in San Mateo County along the Pacific Coast, within a portion of the undeveloped Pescadero Marsh Natural Preserve, and just west of the community of Pescadero. San Mateo County is bounded by the Pacific Ocean and the San Francisco Bay and experiences a cool, foggy climate along the western peninsula's coastline (BAAQMD 2018b). Weather in San Mateo County has mild to moderate temperatures during the winter, rainfall averages of approximately 20-25 inches occur in the County's valleys (BAAQMD 2018b). Although the SFBAAB as a whole has ozone and PM impairments, San Mateo County rarely has $PM_{2.5}$ concentrations exceeding the national standard and almost never exceeds the ozone-related standards (BAAQMD 2018b). In general, sources of the SFBAAB's ozone-precursor emissions are motor vehicles and other mobile sources. Sources of the SFBAAB's $PM_{2.5}$ emissions are primarily the combustion of fossil fuels and biomass, primarily wood (during winter), from various sources. Fugitive dust contributes a significant portion of PM10 emissions in the SFBAAB (BAAQMD 2017b).

Sensitive Receptors

Sensitive receptors are those segments of the population most susceptible to the effects of poor air quality: children, the elderly, and individuals with serious pre-existing health problems affected by air quality (e.g., asthma) (CARB 2005). Examples of locations that contain sensitive receptors are residences, schools and school yards, parks and playgrounds, daycare centers, nursing homes, and medical facilities. Residences include houses, apartments, and senior living complexes. Medical facilities can include

hospitals, convalescent homes, and health clinics. Playgrounds include play areas associated with parks or community centers.

Lands surrounding the Project site are largely undeveloped or include agricultural lands. There are a few scattered sensitive receptors near the Project site, including: (1) three residences are located along Pescadero Creek Road approximately 40 feet from the hauling route to Access Point #7; (2) a residence is located approximately 285 feet from the access route leading to the upper floodplain berm augmentation site and 400 feet from the soil stockpile area near the berm augmentation site; and (3) a CAL FIRE station is located approximately 245 feet from the Pescadero Creek Road bridge portion of the Project site. The closest school is approximately 1 mile east of the Project site. There are no nearby daycares, assisted living- or medical-related facilities. The Pescadero Community Church is approximately 3,900 feet from the upstream end of the Project area.

Methodology

This discussion describes the methodology used to evaluate whether construction and operation/maintenance of the proposed Project would result in significant impacts related to air quality and odors. Once construction is complete, operation of the proposed Project would entail monitoring sediment accumulation in Butano Creek directly upstream and downstream of Pescadero Creek Road and, as necessary, conducting limited sediment removal (up to 1,455 cubic yards per year) over a 5-year period. **Attachment 1 (Air Quality and Greenhouse Gas Emissions Calculations)** includes assumptions that were made for these maintenance and operational/maintenance activities.

During construction of the proposed Project, the combustion of fossil fuels for operation of fossil-fueled construction equipment, material hauling, and worker commute vehicles would result in construction-related emissions of criteria air pollutants. These emissions were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.2 and based on the construction equipment, phasing, duration, and worker quantities summarized in Attachment 1. These estimates were developed based on input from the Project design team (cbec Inc.) and Chapter 2, *Project Description*, of Project's Initial Study. Construction activities were separated into multiple construction phases to account for differences in activities, number of workers, duration of construction activities, and construction equipment needs. These phases generally included site preparation, excavation, dredging, berm construction, construction of the marsh control structure, and site restoration. Average daily emissions were calculated (for comparison to applicable significance thresholds) by converting annual emissions (tons/year) to pounds per day (lb/day) and dividing by the number of active construction days for that particular construction year.

Emissions were compared to applicable thresholds of significance for construction and operation emissions, as detailed by BAAQMD.

Criteria for Determining Significance

Based on Appendix G of the State CEQA Guidelines, the proposed Project would have a significant effect related to air quality if the proposed Project would:

- Conflict with or obstruct implementation of the applicable air quality plan;

- Violate any air quality standard established by USEPA or CARB, or contribute substantially to an existing or projected air quality violation, in comparison to the BAAQMD thresholds below;
- 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);
- Expose sensitive receptors to substantial air pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

BAAQMD Thresholds

The BAAQMD has established mass emission thresholds of significance (BAAQMD 2017b) to determine if air emissions would contribute to an existing or projected air quality violation, result in a cumulatively considerable contribution to an existing air quality violation, or result in a cumulatively considerable net increase of a criteria pollutant such that the air basin would be in nonattainment for CAAQS or NAAQS. The BAAQMD's established significance thresholds for construction- and operation-related emissions are outlined in Table 2 (BAAQMD 2017b). These thresholds of significance were also developed with consideration of potential cumulative effects so that if a project's individual emissions exceed the identified significance thresholds, its emissions would be cumulatively considerable, resulting in significant adverse air quality impacts to the region's existing air quality conditions. The BAAQMD does not have established significance thresholds for construction-related odors.

Table 2. BAAQMD CEQA Thresholds of Significance for Criteria Air Pollutants

Pollutant	Construction-Related	Operational-Related	
Criteria Air Pollutants and Precursors	**Average Daily Emissions (pounds per day)**	**Average Daily Emissions (pounds per day)**	**Maximum Annual Emissions (tons per year)**
ROG	54	54	10
NOx	54	54	10
PM_{10}	82 (Exhaust)	82	15
$PM_{2.5}$	54 (Exhaust)	54	10
$PM_{10}/PM_{2.5}$ (Fugitive Dust)	Best Management Practices (BMPs)	None	

BAAQMD recommends implementation of BMPs to reduce fugitive dust emissions for all projects (see BMP-13 in Chapter 2, Project Description, of the IS). With implementation of fugitive dust control measures in BMP-13, BAAQMD considers fugitive dust emissions to be less than significant.

4. Potential Effects on Air Quality

4.1 Conflict with or Obstruct Implementation of Applicable Air Quality Plans

A project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan, which, in

turn, would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air quality plans. As detailed above, the BAAQMD's 2017 Clean Air Plan presents the BAAQMD's plan for attaining federal air quality standards, particularly for ozone and PM emissions (BAAQMD 2017b). The proposed Project's construction activities would have temporary construction workers (six to twenty) but would not result in any permanent changes in local populations. Similarly, the Project's maintenance-related activities would require brief use of workers onsite but would not permanently or substantially alter the local populations.

The proposed Project would follow all federal, state, and local regulations related to stationary and area sources of air pollutants. In addition, construction activities would follow local air district rules and regulations for fugitive dust, including implementation of BMP-13. In addition, the Project would not impair or conflict with implementation of San Mateo County's General Plan and LCP, or the applicable BAAQMD air quality planning documents including the 2017 Clean Air Plan. Therefore, because the proposed Project would be consistent with the applicable planning policies and would comply with all applicable regulations for sources of air pollutants, the proposed Project would have a less-than-significant impact under CEQA and would not obstruct or conflict with applicable air quality plans.

4.2 Violate any air quality standard or contribute substantially to an existing or projected air quality violation

During construction of the proposed Project, the combustion of fossil fuels for operation of fossil fueled construction equipment, material hauling, and worker trips would result in construction-related criteria air pollutant emissions. The proposed Project's criteria air pollutant emissions during construction are shown in Table 2. CalEEMod modeling results for the proposed Project are provided in Attachment 1. Table 2 compares Project-related emissions against the BAAQMD's established mass emission thresholds of significance.

Table 2. Estimated Construction-Related Criteria Pollutant Emissions for the Proposed Project

	Pollutant						
	ROG	**NO_X**	**CO**	**PM_{10} Exhaust**	**PM_{10} Fugitive**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ Fugitive**
Estimated Project Annual Emissions – 2018 – Tons/year	0.0946	0.1010	0.0508	0.00428	0.019	0.00394	0.0104
Estimated Project Annual Emissions – 2019 – Tons/year	0.334	**3.032**	1.991	0.1317	0.3236	0.1235	0.1719
Estimated Project Average Daily Emissions - 2018 (lbs/day)[1]	37.84	40.40	20.32	1.71	7.60	1.58	4.16
Estimated Project Average Daily Emissions - 2019 (lbs/day)[1]	6.42	**61.25**	40.22	2.66	6.54	2.49	3.47

	Pollutant						
	ROG	**NO_X**	**CO**	**PM_{10} Exhaust**	**PM_{10} Fugitive**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ Fugitive**
BAAQMD Average Daily Emissions Threshold (lbs/day)[2]	54	54	None	82	BMPs	54	BMPs
Exceed Threshold?	N	**Y**	N	N	N	N	N
Mitigated Estimated Project Average Daily – 2019 Emissions[3]	3.47	49.72	43.54	2.13	6.54	2.07	3.47
Exceed Threshold After Mitigation?	N	N	N	N	N	N	N

Note: "BMPs" indicates that no calculation is required because compliance with BMPs is considered by BAAQMD to reduce the emission to below the threshold. Shaded cells indicate exceedance of a significance threshold.

[1] Estimates of fugitive dust emissions (PM_{10} and $PM_{2.5}$) do not account for any watering that would be performed in accordance with the BMP-13, Dust Management Controls. Therefore, actual fugitive dust emissions would be less than those shown.

[2] The average daily emissions thresholds are based on the BAAQMD's *CEQA Air Quality Guidelines* (BAAQMD 2017a).

[3] The mitigated emissions estimates assume that all off-road construction equipment, except for off-road trucks, used during the Project's construction activities would be Tier 3, which provides an approximately 19 percent reduction in NOx emissions. San Mateo Resource Conservation District and/or its contractor may use Tier 3 equipment or another combination of mitigation measures as described in Mitigation Measure AQ-1 below to achieve the BAAQMD significance thresholds.

The proposed Project's NOx emissions would exceed the BAAQMD's NOx significance threshold and would potentially contribute substantially to an existing air quality violation (i.e., ozone nonattainment). All other projected emissions would not exceed their applicable significance thresholds and would not be considered to substantially contribute to any existing air quality violations or violate any air quality standards. Particulate matter emissions from the proposed Project would be minimized through compliance with all of the BAAQMD's applicable regulations, particularly those summarized in BMP-13 in the CEQA Project Description, which prescribes fugitive dust control requirements and minimizes vehicle idling. Implementation of BMP-13 would reduce the potential for and magnitude of PM-related impacts. However, it is recommended that the following mitigation measure be incorporated into the CEQA Initial Study to reduce NO_x emissions to be at least below the BAAQMD's NO_x significance threshold during project construction:

> **Mitigation Measure AQ-1: NO_x Emissions Control and Cap Measures**. SMRCD or its contractor shall implement any combination of the measures described below to reduce NO_x emissions, in any given construction year, to ensure Project NO_x emissions are capped below an average of 54 pounds per day. As a performance standard, the mitigation measures shall demonstrate that off-road equipment (greater than 50 hp) and material hauling vehicles used during construction (i.e., owned, leased, and subcontracted vehicles) will achieve emission reductions to the extent feasible. Equipment and material hauling vehicles shall achieve at least a project-wide fleet average of 20 percent NO_X reduction compared to the most recent CARB fleet average up to a Tier IV-equivalent engine. The SMRCD or its contractor will implement any of the following examples of appropriate mitigation to achieve this reduction including, but not limited to: limit the number of daily one-way material hauling trips, use alternative-fueled equipment, alter the phasing of

construction activities, use of chemical additives or after-market devices to reduce emissions on existing equipment, use higher tier (Tier 3 or greater) and/or newer models for equipment and/or material hauling trucks, use of electrically powered equipment, reduction in total equipment hours, use of alternative fuels, or engine retrofit technology.

As demonstrated in Table 2, implementation of Mitigation Measure AQ-1 is feasible and would reduce the Project's NOx emissions to less than the average daily significance threshold (54 lbs/day). For the purposes of demonstrating feasibility, it was assumed that all off-road equipment, except for trucks, would be at least Tier 3 and achieve at least a 19 percent reduction in NOx emissions. Implementation of this mitigation measure would ensure compliance with the BAAQMD's significance thresholds and ensure that the proposed Project would not substantially contribute to any existing air quality violations or violate any air quality standards. As a result, the Project's construction-related impacts would be less than significant with mitigation under CEQA.

Maintenance-related activities would use substantially less equipment and require less hauling trips, than those forecasted for the Project's construction-related activities. Thus, maintenance-related activities would generate emissions substantially less than the applicable BAAQMD significance thresholds, as shown in Table 3, and would ensure that the proposed Project would not substantially contribute to any existing air quality violations or violate any air quality standards. For these reasons, the Project's maintenance-related impacts would be less than significant under CEQA.

Table 3. Estimated Maintenance-Related Criteria Pollutant Emissions for the Proposed Project

	Pollutant						
	ROG	**NO_X**	**CO**	**PM_{10} Exhaust**	**PM_{10} Fugitive**	**$PM_{2.5}$ Exhaust**	**$PM_{2.5}$ Fugitive**
Estimated Project Annual Maintenance Emissions – 2020 – Tons/year	0.0115	0.1115	0.1162	0.00553	0.0361	0.00539	0.0181
Estimated Project Average Daily Maintenance Emissions – 2020 (lbs/day)[1]	0.22	2.25	2.35	0.11	0.73	0.11	0.37
BAAQMD Average Daily Emissions Threshold (lbs/day)[2]	54	54	None	82	BMPs	54	BMPs
Exceed Threshold?	N	**N**	N	N	N	N	N

Note: "BMPs" indicates that no calculation is required because compliance with BMPs is considered by BAAQMD to reduce the emission to below the threshold. Shaded cells indicate exceedance of a significance threshold.

[1] Estimates of fugitive dust emissions (PM_{10} and $PM_{2.5}$) do not account for any watering that would be performed in accordance with the BMP-13, Dust Management Controls. Therefore, actual fugitive dust emissions would be less than those shown.

[2] The average daily emissions thresholds are based on the BAAQMD's *CEQA Air Quality Guidelines* (BAAQMD 2017a).

4.3 Cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area

As defined in the BAAQMD's CEQA Guidelines, project-level emissions that are below the mass

emissions thresholds are considered to be less than cumulatively considerable. As described above, with implementation of Mitigation Measure AQ-1, the construction-related emissions of all criteria pollutants would be less than significant, rendering the Project's contribution to cumulatively significant impacts less than considerable under CEQA. In addition, maintenance-related emissions would be less than significant and would not have a considerable contribution to cumulatively significant impacts.

4.4 Expose sensitive receptors to substantial pollutant concentrations

During project construction, DPM and gasoline fuel combustion emissions that are classified as TACs could be emitted from construction equipment. Due to the variable nature of construction activity, the generation of TAC emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically operating within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Chronic and cancer-related health effects estimated over short periods are uncertain. Cancer potency factors are based on animal lifetime studies or worker studies with long-term exposure to the carcinogenic agent. There is considerable uncertainty in trying to evaluate the cancer risk from exposure that would last only a small fraction of a lifetime. Some studies indicate that the dose rate may change the potency of a given dose of a carcinogenic chemical. In others words, a dose delivered over a short period may have a different potency than the same dose delivered over a lifetime (California Office of Environmental Health Hazard Assessment [OEHHA] 2015). Furthermore, construction impacts are most severe adjacent to the construction area and decrease rapidly with increasing distance. Concentrations of mobile-source DPM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (CARB 2005).

Hauling activities on Pescadero Creek Road and along the access route on agricultural land as part of construction of the upstream berm augmentation would be temporary (less than 10 days). For this reason, and because potential DPM emissions from hauling trucks would only occur briefly in proximity to any residences as hauling trucks are in transit, residences on Pescadero Creek Road would not be exposed to substantial pollutant concentrations. The other residence, which is located within approximately 400 feet or less of the upstream berm augmentation's hauling route and stockpile area, would also not be exposed to substantial pollutant concentrations from the Project's construction activities because it is located even farther from potential Project sources of TACs (DPM) and activities at the upper berm would be temporary. The other nearest receptor, the CAL FIRE station, would not be exposed to substantial pollutant emissions since it is temporarily occupied by adult workers who are not as sensitive as residential children to TACs, and the Project's construction activities in the vicinity would be temporary. All other potential sensitive receptors, including the Pescadero Community Church, would not be anticipated to be affected by mobile-source DPM emissions due to their distances from project construction activities and haul routes. For the reasons described above, the Project's maintenance-related activities would similarly not be anticipated to expose any sensitive receptors to substantial pollutant concentrations. Therefore, the potential temporary impacts related to exposing sensitive receptors to TACs would be less than significant under CEQA.

4.5 Create objectionable odors affecting a substantial number of people

The Project's construction activities would not result in the generation of permanent or long-term objectionable odors. Odors associated with the intermittent operation of gasoline and diesel-powered

equipment might be detected by nearby sensitive receptors but these odors would be of short duration and would not affect a substantial number of people. Soil or sediment excavated from the Butano Creek channel may contain decaying organic material that may create an objectionable odor. The intensity of the odor perceived by a receptor depends on the distance of the receptor from construction activities and the amount and quality of the exposed soil material. Staging Area #3, which will be used to temporarily stockpile excavated soil, is not located near any sensitive receptors. The soil stockpiling area proposed on agricultural land in the southern portion of the Project site would be within 500 feet of one residence. However, excavated soil would only be placed in this area temporarily until they were dried sufficiently and reused to construct the berm. Therefore, the Project's soil stockpiling activities and other construction-related activities would not result in the generation of permanent or long-term objectionable odors.

For maintenance-related sediment disposal and reuse, all sediment disposal and reuse sites would be identified in the future and may include nearby agricultural properties used in the past for other County-led sediment removal activities. Placement of organic soils or sediment at these sites may cause temporary odors. However, sediment disposal sites would need to be approved by appropriate resource agencies prior to use and would likely not be located in close proximity to sensitive receptors. In addition, any odors that could be produced would be short-term and temporary from either project construction- or maintenance-related activities, and would not affect a substantial number of people. Thus, this impact would be less than significant under CEQA.

5. References

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Attachment 1

Air Quality and Greenhouse Gas Emissions Calculations

Summary of Results and Equipment Assumptions

Construction Phase	Construction Equipment Type and Horsepower size	Equipment Quantity	Construction Equipment Daily Use (hours/days)
Site Prep Fall Veg (5 days)	LGP Dozer	1	10 hrs/day
	Excavator	1	10 hrs/day
	LGP trucks (250 HP)_	2	10 hrs/day
Site Prep (20 Days)	Crane (400hp)	1	1.6 hrs/day
	Dozer (140 HP)	1	2.5 hrs/day
	Dredge tender (shallow water tug) (160 hp)	1	1 hrs/day
	Excavator	1	4.25 hrs/day
	Fork lift	1	2 hrs/day
	Front loader/forklift	3	10 hrs/day
	Pump (40 HP)	1	1 hrs/day
	Skid steer (65 HP)	1	10 hrs/day
	Staff	15	10 hrs/day
	Truck (foreman or other use)	3	7 hrs/day
Dewatering Reach 3 (6 days)	Long-reach excavator	1	5 hrs/day
	Front loader	1	3 hrs/day
Excavation (43 days)	Front loader	1	1.25 hrs/day
	LGP Dozer	1	10 hrs/day
	LGP trucks	4	10 hrs/day
	Long Reach excavator (150 hp)	1	10 hrs/day
	Pump (40 HP)	4	10 hrs/day
	Staff	20	10 hrs/day
Dredging (46 days)	Aerators (10 HP)	4	10 hrs/day
	Air boat (560 hp)	3	6 hrs/day
	Dredge tender (shallow water tug) (160 hp)	1	10 hrs/day
	Dredger (345 hp)	1	10 hrs/day
	Excavator	1	1.25 hrs/day
	Front loader	1	2 hrs/day
	LGP Dozer	1	5 hrs/day
	LGP trucks	2	5 hrs/day
	Long reach excavator	1	5 hrs/day
	Marsh master	1	8 hrs/day
	Pump (40 HP)	6	6 hrs/day
	Skid Steer	1	2 hrs/day
	Staff	6	10 hrs/day
	Trucks	3	10 hrs/day
Dredgring-Only Trucks (65 days)	Only worker trips		

Upper FP Berm (10 days)	Dozer	1	10 hrs/day
	Excavator	1	10 hrs/day
	Roller	1	10 hrs/day
	Staff	7	10 hrs/day
Sandbag dam (5 days)	Excavator	1	10 hrs/day
	Front loader	1	10 hrs/day
	Staff	6	10 hrs/day
Site Restoration (24 days)	Excavator	1	7.5 hrs/day
	Front loader	1	10 hrs/day
	shallow water tug (160 hp)	1	1 hrs/day
	Skid steer (65 hp)	1	10 hrs/day
	Staff	12	10 hrs/day
	Truck (foreman, or other use)	2	4 hrs/day

*LGP Trucks are used for hauling and covered in CalEEMod under Hauling Trips

**Staff numbers were used under Worker Trips in CalEEMod

Air Quality Calculations for Average Daily Emissions

Construction Year (2018)

Construction Duration (days):			**5**				
	ROG	**NOX**	**CO**	**PM10 Exhaust**	**PM10 Fugitive**	**PM2.5 Exhaust**	**PM2.5 Fugitive**
Annual Emissions (tons/year)	0.0946	0.101	0.0508	0.00428	0.019	0.00394	0.0104
Annual Emissions (lbs/year)	189.20	202.00	101.60	8.56	38.00	7.88	20.80
Daily Average Emissions (lbs/day)	37.84	40.40	20.32	1.71	7.60	1.58	4.16
Thresholds	54	54		82		54	

Construction Year (2019)							
Construction Duration (days):			**99**				
	ROG	**NOX**	**CO**	**PM10 Exhaust**	**PM10 Fugitive**	**PM2.5 Exhaust**	**PM2.5 Fugitive**
Annual Emissions (tons/year)	0.334	3.032	1.991	0.1317	0.3236	0.1235	0.1719
Annual Emissions (lbs/year)	668.00	6064.00	3982.00	263.40	647.20	247.00	343.80
Daily Average Emissions (lbs/day)	6.42	**61.25**	40.22	2.66	6.54	2.49	3.47
Thresholds	54	54		82		54	

Minimum Percent Reduction Required in 2019 NOx Emissions to Achieve NOx Threshold:	***13.4%***

Mitigated Construction Year (2019) to Demonstrate Feasibility (*Assume Tier 3 Off-Road Construction Equipment, Except Trucks*)

	ROG	**NOX**	**CO**	**PM10 Exhaust**	**PM10 Fugitive**	**PM2.5 Exhaust**	**PM2.5 Fugitive**
Annual Emissions (tons/year)	0.1802	2.4611	2.1554	0.1052	0.3236	0.1024	0.1719
Annual Emissions (lbs/year)	360.40	4922.20	4310.80	210.40	647.20	204.80	343.80
Daily Average Emissions (lbs/day)	3.47	49.72	43.54	2.13	6.54	2.07	3.47
Thresholds	54	54		82		54	

Percent Reduction in 2019 Emissions Achieved via Mitigation for NOx Threshold:	***18.8%***

Maintenance-Related Emissions (assumed operational year of 2020)

Maintenance Duration (days):			**12**				
	ROG	**NOX**	**CO**	**PM10 Exhaust**	**PM10 Fugitive**	**PM2.5 Exhaust**	**PM2.5 Fugitive**
Annual Emissions (tons/year)	0.0115	0.1115	0.1162	0.00553	0.0361	0.00539	0.0181
Annual Emissions (lbs/year)	23.00	223.00	232.40	11.06	72.20	10.78	36.20
Daily Average Emissions (lbs/day)	0.22	2.25	2.35	0.11	0.73	0.11	0.37
Thresholds	54	54		82		54	

CALEEMOD Construction-Related Results (No Mitigation)

Butano Creek Channel Reconnection and Resilience Project

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	370.00	Acre	370.00	16,117,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Butano Creek Channel Reconnection and Resilience Project - San Mateo County, Annual

Project Characteristics -

Land Use - Based Acreage on Area of Potential Effect in Figure 7

Construction Phase - Based on PD and Data Requests

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - No demolition phase

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - Based on PD & Data Requests. Air boats & marsh master entered as Other Construction Equipment. Dredge eq. entered as Other Material Hauling equipment.

Off-road Equipment - Based on PD and Data Requests. Phase only inlcudes worker trips. Hauling trips covered under excavation phase

Off-road Equipment - Based on PD and Data Request

Off-road Equipment - Based on PD and data requests

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - Updated to reflect data request and PD. Dredge tender (shallow water tug) classified as Other Material Handling Equipment

Off-road Equipment - Based on PD and Data Requests

Trips and VMT - Based on PD and Data Requests. Hauling trips reflect half of excavated/dredged material being transported by truck to fill/use areas.

Grading - 24,673 CY by truck to fill/use areas. Emissions from material piped via dredging are covered under equipment in the dredging construction phase.

Vehicle Trips - Operational Emissions Modeled Separately

Water And Wastewater - Operational Emissions Modeled Separately

Solid Waste - Operational Emissions Modeled Separately

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2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	9.4600e-003	0.1010	0.0508	1.3000e-004	0.0190	4.2800e-003	0.0233	0.0104	3.9400e-003	0.0143	0.0000	11.6250	11.6250	3.5700e-003	0.0000	11.7143
2019	0.3354	3.0333	1.9997	4.5300e-003	0.3267	0.1318	0.4584	0.1727	0.1235	0.2962	0.0000	394.7912	394.7912	0.1060	0.0000	397.4405
Maximum	**0.3354**	**3.0333**	**1.9997**	**4.5300e-003**	**0.3267**	**0.1318**	**0.4584**	**0.1727**	**0.1235**	**0.2962**	**0.0000**	**394.7912**	**394.7912**	**0.1060**	**0.0000**	**397.4405**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	9.4600e-003	0.1010	0.0508	1.3000e-004	0.0190	4.2800e-003	0.0233	0.0104	3.9400e-003	0.0143	0.0000	11.6250	11.6250	3.5700e-003	0.0000	11.7143
2019	0.3354	3.0333	1.9997	4.5300e-003	0.3267	0.1318	0.4584	0.1727	0.1235	0.2962	0.0000	394.7907	394.7907	0.1060	0.0000	397.4401
Maximum	**0.3354**	**3.0333**	**1.9997**	**4.5300e-003**	**0.3267**	**0.1318**	**0.4584**	**0.1727**	**0.1235**	**0.2962**	**0.0000**	**394.7907**	**394.7907**	**0.1060**	**0.0000**	**397.4401**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-1-2018	12-31-2018	0.0789	0.0789
3	4-1-2019	6-30-2019	1.7531	1.7531
4	7-1-2019	9-30-2019	1.6383	1.6383
		Highest	1.7531	1.7531

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1519	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1519**	**3.0000e-005**	**3.4200e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6100e-003**	**6.6100e-003**	**2.0000e-005**	**0.0000**	**7.0500e-003**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1519	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1519**	**3.0000e-005**	**3.4200e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6100e-003**	**6.6100e-003**	**2.0000e-005**	**0.0000**	**7.0500e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2018	9/30/2018	5	0	
2	Site Prep - Fall Veg Removal	Site Preparation	10/1/2018	10/5/2018	5	5	
3	Site Preparation	Site Preparation	6/1/2019	6/24/2019	6	20	
4	Dredging	Grading	6/1/2019	7/24/2019	6	46	
5	Dewatering Reach 3	Grading	6/1/2019	6/7/2019	6	6	
6	Dredging-Only Trucks	Grading	6/1/2019	8/15/2019	6	65	
7	Excavation	Grading	6/8/2019	7/27/2019	6	43	
8	Berm	Grading	8/9/2019	8/20/2019	6	10	
9	Sandbag Dam	Building Construction	8/23/2019	8/29/2019	5	5	
10	Site Restoration	Paving	8/30/2019	9/26/2019	6	24	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Site Prep - Fall Veg Removal	Excavators	1	10.00	158	0.38
Site Prep - Fall Veg Removal	Off-Highway Trucks	2	10.00	402	0.38
Site Prep - Fall Veg Removal	Rubber Tired Dozers	1	10.00	247	0.40

Site Preparation	Cranes	1	1.60	400	0.29
Site Preparation	Excavators	1	4.30	158	0.38
Site Preparation	Forklifts	1	2.00	89	0.20
Site Preparation	Forklifts	3	10.00	89	0.20
Site Preparation	Off-Highway Trucks	3	7.00	402	0.38
Site Preparation	Other Material Handling Equipment	1	1.00	160	0.40
Site Preparation	Pumps	1	1.00	40	0.74
Site Preparation	Rubber Tired Dozers	1	2.50	140	0.40
Site Preparation	Skid Steer Loaders	1	10.00	65	0.37
Dredging	Air Compressors	4	10.00	10	0.48
Dredging	Excavators	1	5.00	150	0.38
Dredging	Excavators	1	1.30	158	0.38
Dredging	Off-Highway Trucks	3	10.00	402	0.38
Dredging	Other Construction Equipment	3	6.00	560	0.42
Dredging	Other Construction Equipment	1	8.00	86	0.42
Dredging	Other Material Handling Equipment	1	10.00	160	0.40
Dredging	Other Material Handling Equipment	1	10.00	345	0.40
Dredging	Pumps	6	6.00	40	0.74
Dredging	Rubber Tired Dozers	1	5.00	247	0.40
Dredging	Skid Steer Loaders	1	2.00	65	0.37
Dredging	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Dewatering Reach 3	Excavators	1	5.00	150	0.38
Dewatering Reach 3	Rubber Tired Loaders	1	3.00	203	0.36
Excavation	Excavators	1	10.00	150	0.38
Excavation	Pumps	4	10.00	40	0.74
Excavation	Rubber Tired Dozers	1	10.00	247	0.40
Excavation	Rubber Tired Loaders	1	1.30	203	0.36

Excavation	Scrapers	0	0.00	367	0.48
Berm	Excavators	1	10.00	158	0.38
Berm	Graders	0	0.00	187	0.41
Berm	Pavers	0	0.00	130	0.42
Berm	Paving Equipment	0	0.00	132	0.36
Berm	Rollers	1	10.00	80	0.38
Berm	Rubber Tired Dozers	1	10.00	247	0.40
Berm	Scrapers	0	0.00	367	0.48
Berm	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Sandbag Dam	Cranes	0	0.00	231	0.29
Sandbag Dam	Excavators	1	10.00	158	0.38
Sandbag Dam	Forklifts	0	0.00	89	0.20
Sandbag Dam	Generator Sets	0	0.00	84	0.74
Sandbag Dam	Rubber Tired Loaders	1	10.00	203	0.36
Sandbag Dam	Welders	0	0.00	46	0.45
Site Restoration	Excavators	1	7.50	158	0.38
Site Restoration	Off-Highway Trucks	2	4.00	402	0.38
Site Restoration	Other Construction Equipment	1	1.00	160	0.42
Site Restoration	Rubber Tired Loaders	1	10.00	203	0.36
Site Restoration	Skid Steer Loaders	1	10.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Prep - Fall Veg Removal	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	13	30.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dredging	24	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering Reach 3	2	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dredging-Only Trucks	0	12.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	7	40.00	0.00	3,084.00	10.80	6.60	1.50	LD_Mix	HDT_Mix	HHDT
Berm	3	14.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Sandbag Dam	2	12.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	24.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Prep - Fall Veg Removal - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0188	0.0000	0.0188	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3800e-003	0.1010	0.0502	1.3000e-004		4.2800e-003	4.2800e-003		3.9300e-003	3.9300e-003	0.0000	11.4504	11.4504	3.5600e-003	0.0000	11.5395
Total	**9.3800e-003**	**0.1010**	**0.0502**	**1.3000e-004**	**0.0188**	**4.2800e-003**	**0.0231**	**0.0103**	**3.9300e-003**	**0.0143**	**0.0000**	**11.4504**	**11.4504**	**3.5600e-003**	**0.0000**	**11.5395**

3.3 Site Prep - Fall Veg Removal - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.0000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1747	0.1747	0.0000	0.0000	0.1748
Total	**8.0000e-005**	**6.0000e-005**	**6.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1747**	**0.1747**	**0.0000**	**0.0000**	**0.1748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0188	0.0000	0.0188	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3800e-003	0.1010	0.0502	1.3000e-004		4.2800e-003	4.2800e-003		3.9300e-003	3.9300e-003	0.0000	11.4503	11.4503	3.5600e-003	0.0000	11.5395
Total	**9.3800e-003**	**0.1010**	**0.0502**	**1.3000e-004**	**0.0188**	**4.2800e-003**	**0.0231**	**0.0103**	**3.9300e-003**	**0.0143**	**0.0000**	**11.4503**	**11.4503**	**3.5600e-003**	**0.0000**	**11.5395**

3.3 Site Prep - Fall Veg Removal - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.0000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1747	0.1747	0.0000	0.0000	0.1748
Total	**8.0000e-005**	**6.0000e-005**	**6.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1747**	**0.1747**	**0.0000**	**0.0000**	**0.1748**

3.4 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0107	0.0000	0.0107	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0322	0.3219	0.2192	5.1000e-004		0.0150	0.0150		0.0138	0.0138	0.0000	45.5471	45.5471	0.0144	0.0000	45.9058
Total	**0.0322**	**0.3219**	**0.2192**	**5.1000e-004**	**0.0220**	**0.0150**	**0.0370**	**0.0107**	**0.0138**	**0.0245**	**0.0000**	**45.5471**	**45.5471**	**0.0144**	**0.0000**	**45.9058**

3.4 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	6.2000e-004	6.4400e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0311	2.0311	4.0000e-005	0.0000	2.0322
Total	**8.9000e-004**	**6.2000e-004**	**6.4400e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0311**	**2.0311**	**4.0000e-005**	**0.0000**	**2.0322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0107	0.0000	0.0107	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0322	0.3219	0.2192	5.1000e-004		0.0150	0.0150		0.0138	0.0138	0.0000	45.5470	45.5470	0.0144	0.0000	45.9058
Total	**0.0322**	**0.3219**	**0.2192**	**5.1000e-004**	**0.0220**	**0.0150**	**0.0370**	**0.0107**	**0.0138**	**0.0245**	**0.0000**	**45.5470**	**45.5470**	**0.0144**	**0.0000**	**45.9058**

3.4 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	6.2000e-004	6.4400e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0311	2.0311	4.0000e-005	0.0000	2.0322
Total	**8.9000e-004**	**6.2000e-004**	**6.4400e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0311**	**2.0311**	**4.0000e-005**	**0.0000**	**2.0322**

3.5 Dredging - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0866	0.0000	0.0866	0.0476	0.0000	0.0476	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1746	1.5360	1.0221	2.4100e-003		0.0685	0.0685		0.0642	0.0642	0.0000	208.0952	208.0952	0.0598	0.0000	209.5891
Total	**0.1746**	**1.5360**	**1.0221**	**2.4100e-003**	**0.0866**	**0.0685**	**0.1551**	**0.0476**	**0.0642**	**0.1118**	**0.0000**	**208.0952**	**208.0952**	**0.0598**	**0.0000**	**209.5891**

3.5 Dredging - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0866	0.0000	0.0866	0.0476	0.0000	0.0476	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1746	1.5360	1.0221	2.4100e-003		0.0685	0.0685		0.0642	0.0642	0.0000	208.0950	208.0950	0.0598	0.0000	209.5888
Total	**0.1746**	**1.5360**	**1.0221**	**2.4100e-003**	**0.0866**	**0.0685**	**0.1551**	**0.0476**	**0.0642**	**0.1118**	**0.0000**	**208.0950**	**208.0950**	**0.0598**	**0.0000**	**209.5888**

3.5 Dredging - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Dewatering Reach 3 - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1000e-004	0.0102	7.7000e-003	2.0000e-005		4.1000e-004	4.1000e-004		3.8000e-004	3.8000e-004	0.0000	1.4569	1.4569	4.6000e-004	0.0000	1.4685
Total	**9.1000e-004**	**0.0102**	**7.7000e-003**	**2.0000e-005**	**0.0000**	**4.1000e-004**	**4.1000e-004**	**0.0000**	**3.8000e-004**	**3.8000e-004**	**0.0000**	**1.4569**	**1.4569**	**4.6000e-004**	**0.0000**	**1.4685**

3.6 Dewatering Reach 3 - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1000e-004	0.0102	7.7000e-003	2.0000e-005		4.1000e-004	4.1000e-004		3.8000e-004	3.8000e-004	0.0000	1.4569	1.4569	4.6000e-004	0.0000	1.4685
Total	**9.1000e-004**	**0.0102**	**7.7000e-003**	**2.0000e-005**	**0.0000**	**4.1000e-004**	**4.1000e-004**	**0.0000**	**3.8000e-004**	**3.8000e-004**	**0.0000**	**1.4569**	**1.4569**	**4.6000e-004**	**0.0000**	**1.4685**

3.6 Dewatering Reach 3 - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Dredging-Only Trucks - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Dredging-Only Trucks - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	8.1000e-004	8.3700e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.4000e-004	0.0000	2.6404	2.6404	6.0000e-005	0.0000	2.6418
Total	**1.1500e-003**	**8.1000e-004**	**8.3700e-003**	**3.0000e-005**	**3.0700e-003**	**2.0000e-005**	**3.0900e-003**	**8.2000e-004**	**2.0000e-005**	**8.4000e-004**	**0.0000**	**2.6404**	**2.6404**	**6.0000e-005**	**0.0000**	**2.6418**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Dredging-Only Trucks - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1500e-003	8.1000e-004	8.3700e-003	3.0000e-005	3.0700e-003	2.0000e-005	3.0900e-003	8.2000e-004	2.0000e-005	8.4000e-004	0.0000	2.6404	2.6404	6.0000e-005	0.0000	2.6418
Total	**1.1500e-003**	**8.1000e-004**	**8.3700e-003**	**3.0000e-005**	**3.0700e-003**	**2.0000e-005**	**3.0900e-003**	**8.2000e-004**	**2.0000e-005**	**8.4000e-004**	**0.0000**	**2.6404**	**2.6404**	**6.0000e-005**	**0.0000**	**2.6418**

3.8 Excavation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1632	0.0000	0.1632	0.0892	0.0000	0.0892	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0862	0.6494	0.4447	7.8000e-004		0.0329	0.0329		0.0313	0.0313	0.0000	63.3372	63.3372	0.0148	0.0000	63.7060
Total	**0.0862**	**0.6494**	**0.4447**	**7.8000e-004**	**0.1632**	**0.0329**	**0.1961**	**0.0892**	**0.0313**	**0.1205**	**0.0000**	**63.3372**	**63.3372**	**0.0148**	**0.0000**	**63.7060**

3.8 Excavation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1500e-003	0.1686	0.0534	1.9000e-004	1.9600e-003	3.2000e-004	2.2800e-003	5.4000e-004	3.0000e-004	8.5000e-004	0.0000	19.4342	19.4342	2.5200e-003	0.0000	19.4971
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5400e-003	1.7900e-003	0.0185	6.0000e-005	6.7700e-003	4.0000e-005	6.8100e-003	1.8000e-003	4.0000e-005	1.8400e-003	0.0000	5.8225	5.8225	1.2000e-004	0.0000	5.8256
Total	**6.6900e-003**	**0.1703**	**0.0718**	**2.5000e-004**	**8.7300e-003**	**3.6000e-004**	**9.0900e-003**	**2.3400e-003**	**3.4000e-004**	**2.6900e-003**	**0.0000**	**25.2567**	**25.2567**	**2.6400e-003**	**0.0000**	**25.3227**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1632	0.0000	0.1632	0.0892	0.0000	0.0892	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0862	0.6494	0.4447	7.8000e-004		0.0329	0.0329		0.0313	0.0313	0.0000	63.3371	63.3371	0.0148	0.0000	63.7059
Total	**0.0862**	**0.6494**	**0.4447**	**7.8000e-004**	**0.1632**	**0.0329**	**0.1961**	**0.0892**	**0.0313**	**0.1205**	**0.0000**	**63.3371**	**63.3371**	**0.0148**	**0.0000**	**63.7059**

3.8 Excavation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1500e-003	0.1686	0.0534	1.9000e-004	1.9600e-003	3.2000e-004	2.2800e-003	5.4000e-004	3.0000e-004	8.5000e-004	0.0000	19.4342	19.4342	2.5200e-003	0.0000	19.4971
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5400e-003	1.7900e-003	0.0185	6.0000e-005	6.7700e-003	4.0000e-005	6.8100e-003	1.8000e-003	4.0000e-005	1.8400e-003	0.0000	5.8225	5.8225	1.2000e-004	0.0000	5.8256
Total	**6.6900e-003**	**0.1703**	**0.0718**	**2.5000e-004**	**8.7300e-003**	**3.6000e-004**	**9.0900e-003**	**2.3400e-003**	**3.4000e-004**	**2.6900e-003**	**0.0000**	**25.2567**	**25.2567**	**2.6400e-003**	**0.0000**	**25.3227**

3.9 Berm - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0376	0.0000	0.0376	0.0207	0.0000	0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.1062	0.0591	1.0000e-004		5.4100e-003	5.4100e-003		4.9800e-003	4.9800e-003	0.0000	9.1639	9.1639	2.9000e-003	0.0000	9.2364
Total	**0.0101**	**0.1062**	**0.0591**	**1.0000e-004**	**0.0376**	**5.4100e-003**	**0.0431**	**0.0207**	**4.9800e-003**	**0.0257**	**0.0000**	**9.1639**	**9.1639**	**2.9000e-003**	**0.0000**	**9.2364**

3.9 Berm - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.5000e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4739	0.4739	1.0000e-005	0.0000	0.4742
Total	**2.1000e-004**	**1.5000e-004**	**1.5000e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4739**	**0.4739**	**1.0000e-005**	**0.0000**	**0.4742**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0376	0.0000	0.0376	0.0207	0.0000	0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.1062	0.0591	1.0000e-004		5.4100e-003	5.4100e-003		4.9800e-003	4.9800e-003	0.0000	9.1639	9.1639	2.9000e-003	0.0000	9.2364
Total	**0.0101**	**0.1062**	**0.0591**	**1.0000e-004**	**0.0376**	**5.4100e-003**	**0.0431**	**0.0207**	**4.9800e-003**	**0.0257**	**0.0000**	**9.1639**	**9.1639**	**2.9000e-003**	**0.0000**	**9.2364**

3.9 Berm - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.5000e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4739	0.4739	1.0000e-005	0.0000	0.4742
Total	**2.1000e-004**	**1.5000e-004**	**1.5000e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4739**	**0.4739**	**1.0000e-005**	**0.0000**	**0.4742**

3.10 Sandbag Dam - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0600e-003	0.0235	0.0154	4.0000e-005		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	3.2033	3.2033	1.0100e-003	0.0000	3.2286
Total	**2.0600e-003**	**0.0235**	**0.0154**	**4.0000e-005**		**9.1000e-004**	**9.1000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.2033**	**3.2033**	**1.0100e-003**	**0.0000**	**3.2286**

3.10 Sandbag Dam - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.4000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2031	0.2031	0.0000	0.0000	0.2032
Total	**9.0000e-005**	**6.0000e-005**	**6.4000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2031**	**0.2031**	**0.0000**	**0.0000**	**0.2032**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0600e-003	0.0235	0.0154	4.0000e-005		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	3.2033	3.2033	1.0100e-003	0.0000	3.2286
Total	**2.0600e-003**	**0.0235**	**0.0154**	**4.0000e-005**		**9.1000e-004**	**9.1000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.2033**	**3.2033**	**1.0100e-003**	**0.0000**	**3.2286**

3.10 Sandbag Dam - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.4000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2031	0.2031	0.0000	0.0000	0.2032
Total	**9.0000e-005**	**6.0000e-005**	**6.4000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2031**	**0.2031**	**0.0000**	**0.0000**	**0.2032**

3.11 Site Restoration - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0194	0.2136	0.1365	3.5000e-004		8.2100e-003	8.2100e-003		7.5500e-003	7.5500e-003	0.0000	31.4325	31.4325	9.9400e-003	0.0000	31.6811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0194**	**0.2136**	**0.1365**	**3.5000e-004**		**8.2100e-003**	**8.2100e-003**		**7.5500e-003**	**7.5500e-003**	**0.0000**	**31.4325**	**31.4325**	**9.9400e-003**	**0.0000**	**31.6811**

3.11 Site Restoration - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	6.0000e-004	6.1800e-003	2.0000e-005	2.2700e-003	1.0000e-005	2.2800e-003	6.0000e-004	1.0000e-005	6.2000e-004	0.0000	1.9499	1.9499	4.0000e-005	0.0000	1.9509
Total	**8.5000e-004**	**6.0000e-004**	**6.1800e-003**	**2.0000e-005**	**2.2700e-003**	**1.0000e-005**	**2.2800e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.9499**	**1.9499**	**4.0000e-005**	**0.0000**	**1.9509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0194	0.2136	0.1365	3.5000e-004		8.2100e-003	8.2100e-003		7.5500e-003	7.5500e-003	0.0000	31.4324	31.4324	9.9400e-003	0.0000	31.6811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0194**	**0.2136**	**0.1365**	**3.5000e-004**		**8.2100e-003**	**8.2100e-003**		**7.5500e-003**	**7.5500e-003**	**0.0000**	**31.4324**	**31.4324**	**9.9400e-003**	**0.0000**	**31.6811**

3.11 Site Restoration - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	6.0000e-004	6.1800e-003	2.0000e-005	2.2700e-003	1.0000e-005	2.2800e-003	6.0000e-004	1.0000e-005	6.2000e-004	0.0000	1.9499	1.9499	4.0000e-005	0.0000	1.9509
Total	**8.5000e-004**	**6.0000e-004**	**6.1800e-003**	**2.0000e-005**	**2.2700e-003**	**1.0000e-005**	**2.2800e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.9499**	**1.9499**	**4.0000e-005**	**0.0000**	**1.9509**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	0.00	0.00	0.00	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1519	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Unmitigated	0.1519	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1515					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Total	**0.1519**	**3.0000e-005**	**3.4200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6100e-003**	**6.6100e-003**	**2.0000e-005**	**0.0000**	**7.0500e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1515					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Total	**0.1519**	**3.0000e-005**	**3.4200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6100e-003**	**6.6100e-003**	**2.0000e-005**	**0.0000**	**7.0500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Butano Creek Channel Reconnection and Resilience Project

San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	370.00	Acre	370.00	16,117,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Butano Creek Channel Reconnection and Resilience Project - San Mateo County, Summer

Project Characteristics -

Land Use - Based Acreage on Area of Potential Effect in Figure 7

Construction Phase - Based on PD and Data Requests

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - No demolition phase

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - Based on PD & Data Requests. Air boats & marsh master entered as Other Construction Equipment. Dredge eq. entered as Other Material Hauling equipment.

Off-road Equipment - Based on PD and Data Requests. Phase only inlcudes worker trips. Hauling trips covered under excavation phase

Off-road Equipment - Based on PD and Data Request

Off-road Equipment - Based on PD and data requests

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - Updated to reflect data request and PD. Dredge tender (shallow water tug) classified as Other Material Handling Equipment

Off-road Equipment - Based on PD and Data Requests

Trips and VMT - Based on PD and Data Requests. Hauling trips reflect half of excavated/dredged material being transported by truck to fill/use areas.

Grading - 24,673 CY by truck to fill/use areas. Emissions from material piped via dredging are covered under equipment in the dredging construction phase.

Vehicle Trips - Operational Emissions Modeled Separately

Water And Wastewater - Operational Emissions Modeled Separately

Solid Waste - Operational Emissions Modeled Separately

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6,200.00	5.00
tblConstructionPhase	NumDays	400.00	0.00
tblConstructionPhase	NumDays	620.00	46.00
tblConstructionPhase	NumDays	620.00	6.00
tblConstructionPhase	NumDays	620.00	65.00
tblConstructionPhase	NumDays	620.00	43.00
tblConstructionPhase	NumDays	620.00	10.00

tblConstructionPhase	NumDays	440.00	24.00
tblConstructionPhase	NumDays	240.00	5.00
tblConstructionPhase	NumDays	240.00	20.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	24,673.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	247.00	140.00
tblOffRoadEquipment	HorsePower	78.00	10.00
tblOffRoadEquipment	HorsePower	231.00	400.00
tblOffRoadEquipment	HorsePower	172.00	160.00
tblOffRoadEquipment	HorsePower	172.00	560.00
tblOffRoadEquipment	HorsePower	172.00	86.00
tblOffRoadEquipment	HorsePower	168.00	160.00
tblOffRoadEquipment	HorsePower	168.00	160.00
tblOffRoadEquipment	HorsePower	168.00	345.00
tblOffRoadEquipment	HorsePower	84.00	40.00
tblOffRoadEquipment	HorsePower	84.00	40.00
tblOffRoadEquipment	HorsePower	84.00	40.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Prep - Fall Veg Removal
tblOffRoadEquipment	PhaseName		Site Prep - Fall Veg Removal
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation

tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dewatering Reach 3
tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Berm
tblOffRoadEquipment	PhaseName		Berm
tblOffRoadEquipment	PhaseName		Berm
tblOffRoadEquipment	PhaseName		Sandbag Dam
tblOffRoadEquipment	PhaseName		Sandbag Dam
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	5.00

tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	2.50
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	31.82	0.00
tblTripsAndVMT	HaulingTripLength	20.00	1.50
tblTripsAndVMT	HaulingVehicleClass		HHDT
tblTripsAndVMT	VendorTripNumber	2,642.00	0.00
tblTripsAndVMT	VendorVehicleClass		HDT_Mix
tblTripsAndVMT	WorkerTripNumber	15.00	24.00
tblTripsAndVMT	WorkerTripNumber	33.00	30.00
tblTripsAndVMT	WorkerTripNumber	60.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00

tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	8.00	14.00
tblTripsAndVMT	WorkerTripNumber	6,769.00	12.00
tblTripsAndVMT	WorkerVehicleClass		LD_Mix
tblVehicleTrips	CC_TL	6.60	0.00
tblVehicleTrips	CNW_TL	6.60	0.00
tblVehicleTrips	CW_TL	14.70	0.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00
tblWater	OutdoorWaterUseRate	440,848,099.37	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.7853	40.4032	20.3226	0.0510	7.6098	1.7111	9.3208	4.1596	1.5742	5.7337	0.0000	5,130.5169	5,130.5169	1.5736	0.0000	5,169.8578
2019	15.2477	137.2068	91.1729	0.2072	14.3247	6.0272	20.3519	7.4900	5.6481	13.1381	0.0000	19,916.7513	19,916.7513	5.3407	0.0000	20,050.2680
Maximum	**15.2477**	**137.2068**	**91.1729**	**0.2072**	**14.3247**	**6.0272**	**20.3519**	**7.4900**	**5.6481**	**13.1381**	**0.0000**	**19,916.7513**	**19,916.7513**	**5.3407**	**0.0000**	**20,050.2680**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.7853	40.4032	20.3226	0.0510	7.6098	1.7111	9.3208	4.1596	1.5742	5.7337	0.0000	5,130.5169	5,130.5169	1.5736	0.0000	5,169.8578
2019	15.2477	137.2068	91.1729	0.2072	14.3247	6.0272	20.3519	7.4900	5.6481	13.1381	0.0000	19,916.7512	19,916.7512	5.3407	0.0000	20,050.2680
Maximum	**15.2477**	**137.2068**	**91.1729**	**0.2072**	**14.3247**	**6.0272**	**20.3519**	**7.4900**	**5.6481**	**13.1381**	**0.0000**	**19,916.7512**	**19,916.7512**	**5.3407**	**0.0000**	**20,050.2680**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8339	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.8339**	**3.5000e-004**	**0.0380**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0810**	**0.0810**	**2.2000e-004**	**0.0000**	**0.0864**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8339	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.8339**	**3.5000e-004**	**0.0380**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0810**	**0.0810**	**2.2000e-004**	**0.0000**	**0.0864**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2018	9/30/2018	5	0	
2	Site Prep - Fall Veg Removal	Site Preparation	10/1/2018	10/5/2018	5	5	
3	Site Preparation	Site Preparation	6/1/2019	6/24/2019	6	20	
4	Dredging	Grading	6/1/2019	7/24/2019	6	46	
5	Dewatering Reach 3	Grading	6/1/2019	6/7/2019	6	6	
6	Dredging-Only Trucks	Grading	6/1/2019	8/15/2019	6	65	
7	Excavation	Grading	6/8/2019	7/27/2019	6	43	
8	Berm	Grading	8/9/2019	8/20/2019	6	10	
9	Sandbag Dam	Building Construction	8/23/2019	8/29/2019	5	5	
10	Site Restoration	Paving	8/30/2019	9/26/2019	6	24	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Butano Creek Channel Reconnection and Resilience Project - San Mateo County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Site Prep - Fall Veg Removal	Excavators	1	10.00	158	0.38
Site Prep - Fall Veg Removal	Off-Highway Trucks	2	10.00	402	0.38
Site Prep - Fall Veg Removal	Rubber Tired Dozers	1	10.00	247	0.40
Site Preparation	Cranes	1	1.60	400	0.29
Site Preparation	Excavators	1	4.30	158	0.38
Site Preparation	Forklifts	1	2.00	89	0.20
Site Preparation	Forklifts	3	10.00	89	0.20
Site Preparation	Off-Highway Trucks	3	7.00	402	0.38
Site Preparation	Other Material Handling Equipment	1	1.00	160	0.40
Site Preparation	Pumps	1	1.00	40	0.74
Site Preparation	Rubber Tired Dozers	1	2.50	140	0.40
Site Preparation	Skid Steer Loaders	1	10.00	65	0.37
Dredging	Air Compressors	4	10.00	10	0.48
Dredging	Excavators	1	5.00	150	0.38
Dredging	Excavators	1	1.30	158	0.38
Dredging	Off-Highway Trucks	3	10.00	402	0.38
Dredging	Other Construction Equipment	3	6.00	560	0.42
Dredging	Other Construction Equipment	1	8.00	86	0.42
Dredging	Other Material Handling Equipment	1	10.00	160	0.40
Dredging	Other Material Handling Equipment	1	10.00	345	0.40
Dredging	Pumps	6	6.00	40	0.74
Dredging	Rubber Tired Dozers	1	5.00	247	0.40
Dredging	Skid Steer Loaders	1	2.00	65	0.37

Dredging	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Dewatering Reach 3	Excavators	1	5.00	150	0.38
Dewatering Reach 3	Rubber Tired Loaders	1	3.00	203	0.36
Excavation	Excavators	1	10.00	150	0.38
Excavation	Pumps	4	10.00	40	0.74
Excavation	Rubber Tired Dozers	1	10.00	247	0.40
Excavation	Rubber Tired Loaders	1	1.30	203	0.36
Excavation	Scrapers	0	0.00	367	0.48
Berm	Excavators	1	10.00	158	0.38
Berm	Graders	0	0.00	187	0.41
Berm	Pavers	0	0.00	130	0.42
Berm	Paving Equipment	0	0.00	132	0.36
Berm	Rollers	1	10.00	80	0.38
Berm	Rubber Tired Dozers	1	10.00	247	0.40
Berm	Scrapers	0	0.00	367	0.48
Berm	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Sandbag Dam	Cranes	0	0.00	231	0.29
Sandbag Dam	Excavators	1	10.00	158	0.38
Sandbag Dam	Forklifts	0	0.00	89	0.20
Sandbag Dam	Generator Sets	0	0.00	84	0.74
Sandbag Dam	Rubber Tired Loaders	1	10.00	203	0.36
Sandbag Dam	Welders	0	0.00	46	0.45
Site Restoration	Excavators	1	7.50	158	0.38
Site Restoration	Off-Highway Trucks	2	4.00	402	0.38
Site Restoration	Other Construction Equipment	1	1.00	160	0.42
Site Restoration	Rubber Tired Loaders	1	10.00	203	0.36
Site Restoration	Skid Steer Loaders	1	10.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Prep - Fall Veg Removal	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	13	30.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dredging	24	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering Reach 3	2	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dredging-Only Trucks	0	12.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	7	40.00	0.00	3,084.00	10.80	6.60	1.50	LD_Mix	HDT_Mix	HHDT
Berm	3	14.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Sandbag Dam	2	12.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	24.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Prep - Fall Veg Removal - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5276	0.0000	7.5276	4.1378	0.0000	4.1378			0.0000			0.0000
Off-Road	3.7524	40.3823	20.0693	0.0502		1.7105	1.7105		1.5737	1.5737		5,048.7382	5,048.7382	1.5717		5,088.0318
Total	**3.7524**	**40.3823**	**20.0693**	**0.0502**	**7.5276**	**1.7105**	**9.2382**	**4.1378**	**1.5737**	**5.7115**		**5,048.7382**	**5,048.7382**	**1.5717**		**5,088.0318**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0330	0.0209	0.2533	8.2000e-004	0.0822	5.1000e-004	0.0827	0.0218	4.7000e-004	0.0223		81.7786	81.7786	1.9000e-003		81.8261
Total	**0.0330**	**0.0209**	**0.2533**	**8.2000e-004**	**0.0822**	**5.1000e-004**	**0.0827**	**0.0218**	**4.7000e-004**	**0.0223**		**81.7786**	**81.7786**	**1.9000e-003**		**81.8261**

3.3 Site Prep - Fall Veg Removal - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5276	0.0000	7.5276	4.1378	0.0000	4.1378			0.0000			0.0000
Off-Road	3.7524	40.3823	20.0693	0.0502		1.7105	1.7105		1.5737	1.5737	0.0000	5,048.7382	5,048.7382	1.5717		5,088.0318
Total	**3.7524**	**40.3823**	**20.0693**	**0.0502**	**7.5276**	**1.7105**	**9.2382**	**4.1378**	**1.5737**	**5.7115**	**0.0000**	**5,048.7382**	**5,048.7382**	**1.5717**		**5,088.0318**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0330	0.0209	0.2533	8.2000e-004	0.0822	5.1000e-004	0.0827	0.0218	4.7000e-004	0.0223		81.7786	81.7786	1.9000e-003		81.8261
Total	**0.0330**	**0.0209**	**0.2533**	**8.2000e-004**	**0.0822**	**5.1000e-004**	**0.0827**	**0.0218**	**4.7000e-004**	**0.0223**		**81.7786**	**81.7786**	**1.9000e-003**		**81.8261**

3.4 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2001	0.0000	2.2001	1.0688	0.0000	1.0688			0.0000			0.0000
Off-Road	3.2211	32.1847	21.9225	0.0508		1.5022	1.5022		1.3832	1.3832		5,020.7070	5,020.7070	1.5817		5,060.2501
Total	**3.2211**	**32.1847**	**21.9225**	**0.0508**	**2.2001**	**1.5022**	**3.7022**	**1.0688**	**1.3832**	**2.4520**		**5,020.7070**	**5,020.7070**	**1.5817**		**5,060.2501**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0895	0.0551	0.6821	2.3800e-003	0.2464	1.5100e-003	0.2480	0.0654	1.4000e-003	0.0668		237.6955	237.6955	5.0300e-003		237.8212
Total	**0.0895**	**0.0551**	**0.6821**	**2.3800e-003**	**0.2464**	**1.5100e-003**	**0.2480**	**0.0654**	**1.4000e-003**	**0.0668**		**237.6955**	**237.6955**	**5.0300e-003**		**237.8212**

3.4 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2001	0.0000	2.2001	1.0688	0.0000	1.0688			0.0000			0.0000
Off-Road	3.2211	32.1847	21.9225	0.0508		1.5022	1.5022		1.3832	1.3832	0.0000	5,020.7070	5,020.7070	1.5817		5,060.2501
Total	**3.2211**	**32.1847**	**21.9225**	**0.0508**	**2.2001**	**1.5022**	**3.7022**	**1.0688**	**1.3832**	**2.4520**	**0.0000**	**5,020.7070**	**5,020.7070**	**1.5817**		**5,060.2501**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0895	0.0551	0.6821	2.3800e-003	0.2464	1.5100e-003	0.2480	0.0654	1.4000e-003	0.0668		237.6955	237.6955	5.0300e-003		237.8212
Total	**0.0895**	**0.0551**	**0.6821**	**2.3800e-003**	**0.2464**	**1.5100e-003**	**0.2480**	**0.0654**	**1.4000e-003**	**0.0668**		**237.6955**	**237.6955**	**5.0300e-003**		**237.8212**

3.5 Dredging - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7638	0.0000	3.7638	2.0689	0.0000	2.0689			0.0000			0.0000
Off-Road	7.5891	66.7812	44.4396	0.1047		2.9780	2.9780		2.7921	2.7921		9,973.2915	9,973.2915	2.8638		10,044.8874
Total	**7.5891**	**66.7812**	**44.4396**	**0.1047**	**3.7638**	**2.9780**	**6.7418**	**2.0689**	**2.7921**	**4.8610**		**9,973.2915**	**9,973.2915**	**2.8638**		**10,044.8874**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Dredging - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7638	0.0000	3.7638	2.0689	0.0000	2.0689			0.0000			0.0000
Off-Road	7.5891	66.7812	44.4396	0.1047		2.9780	2.9780		2.7921	2.7921	0.0000	9,973.2915	9,973.2915	2.8638		10,044.8874
Total	**7.5891**	**66.7812**	**44.4396**	**0.1047**	**3.7638**	**2.9780**	**6.7418**	**2.0689**	**2.7921**	**4.8610**	**0.0000**	**9,973.2915**	**9,973.2915**	**2.8638**		**10,044.8874**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Dewatering Reach 3 - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3042	3.4012	2.5658	5.4100e-003		0.1374	0.1374		0.1264	0.1264		535.3307	535.3307	0.1694		539.5650
Total	**0.3042**	**3.4012**	**2.5658**	**5.4100e-003**	**0.0000**	**0.1374**	**0.1374**	**0.0000**	**0.1264**	**0.1264**		**535.3307**	**535.3307**	**0.1694**		**539.5650**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Dewatering Reach 3 - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3042	3.4012	2.5658	5.4100e-003		0.1374	0.1374		0.1264	0.1264	0.0000	535.3307	535.3307	0.1694		539.5650
Total	**0.3042**	**3.4012**	**2.5658**	**5.4100e-003**	**0.0000**	**0.1374**	**0.1374**	**0.0000**	**0.1264**	**0.1264**	**0.0000**	**535.3307**	**535.3307**	**0.1694**		**539.5650**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Dredging-Only Trucks - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0358	0.0220	0.2728	9.5000e-004	0.0986	6.1000e-004	0.0992	0.0262	5.6000e-004	0.0267		95.0782	95.0782	2.0100e-003		95.1285
Total	**0.0358**	**0.0220**	**0.2728**	**9.5000e-004**	**0.0986**	**6.1000e-004**	**0.0992**	**0.0262**	**5.6000e-004**	**0.0267**		**95.0782**	**95.0782**	**2.0100e-003**		**95.1285**

3.7 Dredging-Only Trucks - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0358	0.0220	0.2728	9.5000e-004	0.0986	6.1000e-004	0.0992	0.0262	5.6000e-004	0.0267		95.0782	95.0782	2.0100e-003		95.1285
Total	**0.0358**	**0.0220**	**0.2728**	**9.5000e-004**	**0.0986**	**6.1000e-004**	**0.0992**	**0.0262**	**5.6000e-004**	**0.0267**		**95.0782**	**95.0782**	**2.0100e-003**		**95.1285**

3.8 Excavation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5925	0.0000	7.5925	4.1476	0.0000	4.1476			0.0000			0.0000
Off-Road	4.0086	30.2032	20.6828	0.0361		1.5291	1.5291		1.4559	1.4559		3,247.3144	3,247.3144	0.7565		3,266.2259
Total	**4.0086**	**30.2032**	**20.6828**	**0.0361**	**7.5925**	**1.5291**	**9.1216**	**4.1476**	**1.4559**	**5.6035**		**3,247.3144**	**3,247.3144**	**0.7565**		**3,266.2259**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1842	7.8872	2.2635	9.1200e-003	0.0948	0.0137	0.1085	0.0261	0.0131	0.0392		1,025.7374	1,025.7374	0.1249		1,028.8600
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1194	0.0734	0.9095	3.1800e-003	0.3286	2.0200e-003	0.3306	0.0872	1.8600e-003	0.0890		316.9273	316.9273	6.7100e-003		317.0949
Total	**0.3036**	**7.9606**	**3.1730**	**0.0123**	**0.4233**	**0.0158**	**0.4391**	**0.1132**	**0.0150**	**0.1282**		**1,342.6647**	**1,342.6647**	**0.1316**		**1,345.9549**

3.8 Excavation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5925	0.0000	7.5925	4.1476	0.0000	4.1476			0.0000			0.0000
Off-Road	4.0086	30.2032	20.6828	0.0361		1.5291	1.5291		1.4559	1.4559	0.0000	3,247.3144	3,247.3144	0.7565		3,266.2259
Total	**4.0086**	**30.2032**	**20.6828**	**0.0361**	**7.5925**	**1.5291**	**9.1216**	**4.1476**	**1.4559**	**5.6035**	**0.0000**	**3,247.3144**	**3,247.3144**	**0.7565**		**3,266.2259**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1842	7.8872	2.2635	9.1200e-003	0.0948	0.0137	0.1085	0.0261	0.0131	0.0392		1,025.7374	1,025.7374	0.1249		1,028.8600
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1194	0.0734	0.9095	3.1800e-003	0.3286	2.0200e-003	0.3306	0.0872	1.8600e-003	0.0890		316.9273	316.9273	6.7100e-003		317.0949
Total	**0.3036**	**7.9606**	**3.1730**	**0.0123**	**0.4233**	**0.0158**	**0.4391**	**0.1132**	**0.0150**	**0.1282**		**1,342.6647**	**1,342.6647**	**0.1316**		**1,345.9549**

3.9 Berm - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5276	0.0000	7.5276	4.1378	0.0000	4.1378			0.0000			0.0000
Off-Road	2.0273	21.2465	11.8182	0.0204		1.0817	1.0817		0.9952	0.9952		2,020.2973	2,020.2973	0.6392		2,036.2773
Total	**2.0273**	**21.2465**	**11.8182**	**0.0204**	**7.5276**	**1.0817**	**8.6094**	**4.1378**	**0.9952**	**5.1330**		**2,020.2973**	**2,020.2973**	**0.6392**		**2,036.2773**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0418	0.0257	0.3183	1.1100e-003	0.1150	7.1000e-004	0.1157	0.0305	6.5000e-004	0.0312		110.9245	110.9245	2.3500e-003		110.9832
Total	**0.0418**	**0.0257**	**0.3183**	**1.1100e-003**	**0.1150**	**7.1000e-004**	**0.1157**	**0.0305**	**6.5000e-004**	**0.0312**		**110.9245**	**110.9245**	**2.3500e-003**		**110.9832**

3.9 Berm - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5276	0.0000	7.5276	4.1378	0.0000	4.1378			0.0000			0.0000
Off-Road	2.0273	21.2465	11.8182	0.0204		1.0817	1.0817		0.9952	0.9952	0.0000	2,020.2973	2,020.2973	0.6392		2,036.2773
Total	**2.0273**	**21.2465**	**11.8182**	**0.0204**	**7.5276**	**1.0817**	**8.6094**	**4.1378**	**0.9952**	**5.1330**	**0.0000**	**2,020.2973**	**2,020.2973**	**0.6392**		**2,036.2773**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0418	0.0257	0.3183	1.1100e-003	0.1150	7.1000e-004	0.1157	0.0305	6.5000e-004	0.0312		110.9245	110.9245	2.3500e-003		110.9832
Total	**0.0418**	**0.0257**	**0.3183**	**1.1100e-003**	**0.1150**	**7.1000e-004**	**0.1157**	**0.0305**	**6.5000e-004**	**0.0312**		**110.9245**	**110.9245**	**2.3500e-003**		**110.9832**

3.10 Sandbag Dam - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8244	9.3853	6.1775	0.0143		0.3639	0.3639		0.3348	0.3348		1,412.4139	1,412.4139	0.4469		1,423.5857
Total	**0.8244**	**9.3853**	**6.1775**	**0.0143**		**0.3639**	**0.3639**		**0.3348**	**0.3348**		**1,412.4139**	**1,412.4139**	**0.4469**		**1,423.5857**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0358	0.0220	0.2728	9.5000e-004	0.0986	6.1000e-004	0.0992	0.0262	5.6000e-004	0.0267		95.0782	95.0782	2.0100e-003		95.1285
Total	**0.0358**	**0.0220**	**0.2728**	**9.5000e-004**	**0.0986**	**6.1000e-004**	**0.0992**	**0.0262**	**5.6000e-004**	**0.0267**		**95.0782**	**95.0782**	**2.0100e-003**		**95.1285**

3.10 Sandbag Dam - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8244	9.3853	6.1775	0.0143		0.3639	0.3639		0.3348	0.3348	0.0000	1,412.4139	1,412.4139	0.4469		1,423.5857
Total	**0.8244**	**9.3853**	**6.1775**	**0.0143**		**0.3639**	**0.3639**		**0.3348**	**0.3348**	**0.0000**	**1,412.4139**	**1,412.4139**	**0.4469**		**1,423.5857**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0358	0.0220	0.2728	9.5000e-004	0.0986	6.1000e-004	0.0992	0.0262	5.6000e-004	0.0267		95.0782	95.0782	2.0100e-003		95.1285
Total	**0.0358**	**0.0220**	**0.2728**	**9.5000e-004**	**0.0986**	**6.1000e-004**	**0.0992**	**0.0262**	**5.6000e-004**	**0.0267**		**95.0782**	**95.0782**	**2.0100e-003**		**95.1285**

3.11 Site Restoration - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6196	17.8017	11.3746	0.0292		0.6841	0.6841		0.6294	0.6294		2,887.3638	2,887.3638	0.9135		2,910.2021
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6196**	**17.8017**	**11.3746**	**0.0292**		**0.6841**	**0.6841**		**0.6294**	**0.6294**		**2,887.3638**	**2,887.3638**	**0.9135**		**2,910.2021**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0716	0.0441	0.5457	1.9100e-003	0.1972	1.2100e-003	0.1984	0.0523	1.1200e-003	0.0534		190.1564	190.1564	4.0200e-003		190.2570
Total	**0.0716**	**0.0441**	**0.5457**	**1.9100e-003**	**0.1972**	**1.2100e-003**	**0.1984**	**0.0523**	**1.1200e-003**	**0.0534**		**190.1564**	**190.1564**	**4.0200e-003**		**190.2570**

3.11 Site Restoration - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6196	17.8017	11.3746	0.0292		0.6841	0.6841		0.6294	0.6294	0.0000	2,887.3638	2,887.3638	0.9135		2,910.2021
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6196**	**17.8017**	**11.3746**	**0.0292**		**0.6841**	**0.6841**		**0.6294**	**0.6294**	**0.0000**	**2,887.3638**	**2,887.3638**	**0.9135**		**2,910.2021**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0716	0.0441	0.5457	1.9100e-003	0.1972	1.2100e-003	0.1984	0.0523	1.1200e-003	0.0534		190.1564	190.1564	4.0200e-003		190.2570
Total	**0.0716**	**0.0441**	**0.5457**	**1.9100e-003**	**0.1972**	**1.2100e-003**	**0.1984**	**0.0523**	**1.1200e-003**	**0.0534**		**190.1564**	**190.1564**	**4.0200e-003**		**190.2570**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	0.00	0.00	0.00	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8339	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Unmitigated	0.8339	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8304					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.5800e-003	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Total	**0.8339**	**3.5000e-004**	**0.0380**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0810**	**0.0810**	**2.2000e-004**		**0.0864**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8304					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.5800e-003	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Total	**0.8339**	**3.5000e-004**	**0.0380**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0810**	**0.0810**	**2.2000e-004**		**0.0864**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Butano Creek Channel Reconnection and Resilience Project

San Mateo County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	370.00	Acre	370.00	16,117,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Butano Creek Channel Reconnection and Resilience Project - San Mateo County, Winter

Project Characteristics -

Land Use - Based Acreage on Area of Potential Effect in Figure 7

Construction Phase - Based on PD and Data Requests

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - No demolition phase

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - Based on PD & Data Requests. Air boats & marsh master entered as Other Construction Equipment. Dredge eq. entered as Other Material Hauling equipment.

Off-road Equipment - Based on PD and Data Requests. Phase only inlcudes worker trips. Hauling trips covered under excavation phase

Off-road Equipment - Based on PD and Data Request

Off-road Equipment - Based on PD and data requests

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - Updated to reflect data request and PD. Dredge tender (shallow water tug) classified as Other Material Handling Equipment

Off-road Equipment - Based on PD and Data Requests

Trips and VMT - Based on PD and Data Requests. Hauling trips reflect half of excavated/dredged material being transported by truck to fill/use areas.

Grading - 24,673 CY by truck to fill/use areas. Emissions from material piped via dredging are covered under equipment in the dredging construction phase.

Vehicle Trips - Operational Emissions Modeled Separately

Water And Wastewater - Operational Emissions Modeled Separately

Solid Waste - Operational Emissions Modeled Separately

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	6,200.00	5.00
tblConstructionPhase	NumDays	400.00	0.00
tblConstructionPhase	NumDays	620.00	46.00
tblConstructionPhase	NumDays	620.00	6.00
tblConstructionPhase	NumDays	620.00	65.00
tblConstructionPhase	NumDays	620.00	43.00
tblConstructionPhase	NumDays	620.00	10.00

tblConstructionPhase	NumDays	440.00	24.00
tblConstructionPhase	NumDays	240.00	5.00
tblConstructionPhase	NumDays	240.00	20.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	24,673.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	247.00	140.00
tblOffRoadEquipment	HorsePower	78.00	10.00
tblOffRoadEquipment	HorsePower	231.00	400.00
tblOffRoadEquipment	HorsePower	172.00	160.00
tblOffRoadEquipment	HorsePower	172.00	560.00
tblOffRoadEquipment	HorsePower	172.00	86.00
tblOffRoadEquipment	HorsePower	168.00	160.00
tblOffRoadEquipment	HorsePower	168.00	160.00
tblOffRoadEquipment	HorsePower	168.00	345.00
tblOffRoadEquipment	HorsePower	84.00	40.00
tblOffRoadEquipment	HorsePower	84.00	40.00
tblOffRoadEquipment	HorsePower	84.00	40.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Prep - Fall Veg Removal
tblOffRoadEquipment	PhaseName		Site Prep - Fall Veg Removal
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation

tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
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tblOffRoadEquipment	PhaseName		Dredging
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tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dredging
tblOffRoadEquipment	PhaseName		Dewatering Reach 3
tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Excavation
tblOffRoadEquipment	PhaseName		Berm
tblOffRoadEquipment	PhaseName		Berm
tblOffRoadEquipment	PhaseName		Berm
tblOffRoadEquipment	PhaseName		Sandbag Dam
tblOffRoadEquipment	PhaseName		Sandbag Dam
tblOffRoadEquipment	PhaseName		Site Restoration
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tblOffRoadEquipment	PhaseName		Site Restoration
tblOffRoadEquipment	PhaseName		Site Restoration
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tblOffRoadEquipment	UsageHours	7.00	0.00
tblOffRoadEquipment	UsageHours	8.00	5.00

tblOffRoadEquipment	UsageHours	8.00	1.30
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	5.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
tblOffRoadEquipment	UsageHours	8.00	10.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	31.82	0.00
tblTripsAndVMT	HaulingTripLength	20.00	1.50
tblTripsAndVMT	HaulingVehicleClass		HHDT
tblTripsAndVMT	VendorTripNumber	2,642.00	0.00
tblTripsAndVMT	VendorVehicleClass		HDT_Mix
tblTripsAndVMT	WorkerTripNumber	15.00	24.00
tblTripsAndVMT	WorkerTripNumber	33.00	30.00
tblTripsAndVMT	WorkerTripNumber	60.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	0.00

tblTripsAndVMT	WorkerTripNumber	18.00	40.00
tblTripsAndVMT	WorkerTripNumber	8.00	14.00
tblTripsAndVMT	WorkerTripNumber	6,769.00	12.00
tblTripsAndVMT	WorkerVehicleClass		LD_Mix
tblVehicleTrips	CC_TL	6.60	0.00
tblVehicleTrips	CNW_TL	6.60	0.00
tblVehicleTrips	CW_TL	14.70	0.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00
tblWater	OutdoorWaterUseRate	440,848,099.37	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.7889	40.4081	20.3174	0.0509	7.6098	1.7111	9.3208	4.1596	1.5742	5.7337	0.0000	5,125.4744	5,125.4744	1.5736	0.0000	5,164.8136
2019	15.2938	137.0684	91.5881	0.2062	14.3247	6.0297	20.3544	7.4900	5.6506	13.1406	0.0000	19,806.8400	19,806.8400	5.3493	0.0000	19,940.5718
Maximum	**15.2938**	**137.0684**	**91.5881**	**0.2062**	**14.3247**	**6.0297**	**20.3544**	**7.4900**	**5.6506**	**13.1406**	**0.0000**	**19,806.8400**	**19,806.8400**	**5.3493**	**0.0000**	**19,940.5718**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	3.7889	40.4081	20.3174	0.0509	7.6098	1.7111	9.3208	4.1596	1.5742	5.7337	0.0000	5,125.4744	5,125.4744	1.5736	0.0000	5,164.8136
2019	15.2938	137.0684	91.5881	0.2062	14.3247	6.0297	20.3544	7.4900	5.6506	13.1406	0.0000	19,806.8400	19,806.8400	5.3493	0.0000	19,940.5718
Maximum	**15.2938**	**137.0684**	**91.5881**	**0.2062**	**14.3247**	**6.0297**	**20.3544**	**7.4900**	**5.6506**	**13.1406**	**0.0000**	**19,806.8400**	**19,806.8400**	**5.3493**	**0.0000**	**19,940.5718**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8339	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.8339**	**3.5000e-004**	**0.0380**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0810**	**0.0810**	**2.2000e-004**	**0.0000**	**0.0864**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8339	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.8339**	**3.5000e-004**	**0.0380**	**0.0000**	**0.0000**	**1.4000e-004**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**1.4000e-004**		**0.0810**	**0.0810**	**2.2000e-004**	**0.0000**	**0.0864**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2018	9/30/2018	5	0	
2	Site Prep - Fall Veg Removal	Site Preparation	10/1/2018	10/5/2018	5	5	
3	Site Preparation	Site Preparation	6/1/2019	6/24/2019	6	20	
4	Dredging	Grading	6/1/2019	7/24/2019	6	46	
5	Dewatering Reach 3	Grading	6/1/2019	6/7/2019	6	6	
6	Dredging-Only Trucks	Grading	6/1/2019	8/15/2019	6	65	
7	Excavation	Grading	6/8/2019	7/27/2019	6	43	
8	Berm	Grading	8/9/2019	8/20/2019	6	10	
9	Sandbag Dam	Building Construction	8/23/2019	8/29/2019	5	5	
10	Site Restoration	Paving	8/30/2019	9/26/2019	6	24	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Butano Creek Channel Reconnection and Resilience Project - San Mateo County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Site Prep - Fall Veg Removal	Excavators	1	10.00	158	0.38
Site Prep - Fall Veg Removal	Off-Highway Trucks	2	10.00	402	0.38
Site Prep - Fall Veg Removal	Rubber Tired Dozers	1	10.00	247	0.40
Site Preparation	Cranes	1	1.60	400	0.29
Site Preparation	Excavators	1	4.30	158	0.38
Site Preparation	Forklifts	1	2.00	89	0.20
Site Preparation	Forklifts	3	10.00	89	0.20
Site Preparation	Off-Highway Trucks	3	7.00	402	0.38
Site Preparation	Other Material Handling Equipment	1	1.00	160	0.40
Site Preparation	Pumps	1	1.00	40	0.74
Site Preparation	Rubber Tired Dozers	1	2.50	140	0.40
Site Preparation	Skid Steer Loaders	1	10.00	65	0.37
Dredging	Air Compressors	4	10.00	10	0.48
Dredging	Excavators	1	5.00	150	0.38
Dredging	Excavators	1	1.30	158	0.38
Dredging	Off-Highway Trucks	3	10.00	402	0.38
Dredging	Other Construction Equipment	3	6.00	560	0.42
Dredging	Other Construction Equipment	1	8.00	86	0.42
Dredging	Other Material Handling Equipment	1	10.00	160	0.40
Dredging	Other Material Handling Equipment	1	10.00	345	0.40
Dredging	Pumps	6	6.00	40	0.74
Dredging	Rubber Tired Dozers	1	5.00	247	0.40
Dredging	Skid Steer Loaders	1	2.00	65	0.37

Dredging	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Dewatering Reach 3	Excavators	1	5.00	150	0.38
Dewatering Reach 3	Rubber Tired Loaders	1	3.00	203	0.36
Excavation	Excavators	1	10.00	150	0.38
Excavation	Pumps	4	10.00	40	0.74
Excavation	Rubber Tired Dozers	1	10.00	247	0.40
Excavation	Rubber Tired Loaders	1	1.30	203	0.36
Excavation	Scrapers	0	0.00	367	0.48
Berm	Excavators	1	10.00	158	0.38
Berm	Graders	0	0.00	187	0.41
Berm	Pavers	0	0.00	130	0.42
Berm	Paving Equipment	0	0.00	132	0.36
Berm	Rollers	1	10.00	80	0.38
Berm	Rubber Tired Dozers	1	10.00	247	0.40
Berm	Scrapers	0	0.00	367	0.48
Berm	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Sandbag Dam	Cranes	0	0.00	231	0.29
Sandbag Dam	Excavators	1	10.00	158	0.38
Sandbag Dam	Forklifts	0	0.00	89	0.20
Sandbag Dam	Generator Sets	0	0.00	84	0.74
Sandbag Dam	Rubber Tired Loaders	1	10.00	203	0.36
Sandbag Dam	Welders	0	0.00	46	0.45
Site Restoration	Excavators	1	7.50	158	0.38
Site Restoration	Off-Highway Trucks	2	4.00	402	0.38
Site Restoration	Other Construction Equipment	1	1.00	160	0.42
Site Restoration	Rubber Tired Loaders	1	10.00	203	0.36
Site Restoration	Skid Steer Loaders	1	10.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Prep - Fall Veg Removal	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	13	30.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dredging	24	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering Reach 3	2	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dredging-Only Trucks	0	12.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Excavation	7	40.00	0.00	3,084.00	10.80	6.60	1.50	LD_Mix	HDT_Mix	HHDT
Berm	3	14.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Sandbag Dam	2	12.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	24.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Prep - Fall Veg Removal - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5276	0.0000	7.5276	4.1378	0.0000	4.1378			0.0000			0.0000
Off-Road	3.7524	40.3823	20.0693	0.0502		1.7105	1.7105		1.5737	1.5737		5,048.7382	5,048.7382	1.5717		5,088.0318
Total	**3.7524**	**40.3823**	**20.0693**	**0.0502**	**7.5276**	**1.7105**	**9.2382**	**4.1378**	**1.5737**	**5.7115**		**5,048.7382**	**5,048.7382**	**1.5717**		**5,088.0318**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0366	0.0258	0.2481	7.7000e-004	0.0822	5.1000e-004	0.0827	0.0218	4.7000e-004	0.0223		76.7361	76.7361	1.8300e-003		76.7818
Total	**0.0366**	**0.0258**	**0.2481**	**7.7000e-004**	**0.0822**	**5.1000e-004**	**0.0827**	**0.0218**	**4.7000e-004**	**0.0223**		**76.7361**	**76.7361**	**1.8300e-003**		**76.7818**

3.3 Site Prep - Fall Veg Removal - 2018

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5276	0.0000	7.5276	4.1378	0.0000	4.1378			0.0000			0.0000
Off-Road	3.7524	40.3823	20.0693	0.0502		1.7105	1.7105		1.5737	1.5737	0.0000	5,048.7382	5,048.7382	1.5717		5,088.0318
Total	**3.7524**	**40.3823**	**20.0693**	**0.0502**	**7.5276**	**1.7105**	**9.2382**	**4.1378**	**1.5737**	**5.7115**	**0.0000**	**5,048.7382**	**5,048.7382**	**1.5717**		**5,088.0318**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0366	0.0258	0.2481	7.7000e-004	0.0822	5.1000e-004	0.0827	0.0218	4.7000e-004	0.0223		76.7361	76.7361	1.8300e-003		76.7818
Total	**0.0366**	**0.0258**	**0.2481**	**7.7000e-004**	**0.0822**	**5.1000e-004**	**0.0827**	**0.0218**	**4.7000e-004**	**0.0223**		**76.7361**	**76.7361**	**1.8300e-003**		**76.7818**

3.4 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2001	0.0000	2.2001	1.0688	0.0000	1.0688			0.0000			0.0000
Off-Road	3.2211	32.1847	21.9225	0.0508		1.5022	1.5022		1.3832	1.3832		5,020.7070	5,020.7070	1.5817		5,060.2501
Total	**3.2211**	**32.1847**	**21.9225**	**0.0508**	**2.2001**	**1.5022**	**3.7022**	**1.0688**	**1.3832**	**2.4520**		**5,020.7070**	**5,020.7070**	**1.5817**		**5,060.2501**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0994	0.0680	0.6639	2.2400e-003	0.2464	1.5100e-003	0.2480	0.0654	1.4000e-003	0.0668		223.0418	223.0418	4.8200e-003		223.1625
Total	**0.0994**	**0.0680**	**0.6639**	**2.2400e-003**	**0.2464**	**1.5100e-003**	**0.2480**	**0.0654**	**1.4000e-003**	**0.0668**		**223.0418**	**223.0418**	**4.8200e-003**		**223.1625**

3.4 Site Preparation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					2.2001	0.0000	2.2001	1.0688	0.0000	1.0688			0.0000			0.0000
Off-Road	3.2211	32.1847	21.9225	0.0508		1.5022	1.5022		1.3832	1.3832	0.0000	5,020.7070	5,020.7070	1.5817		5,060.2501
Total	**3.2211**	**32.1847**	**21.9225**	**0.0508**	**2.2001**	**1.5022**	**3.7022**	**1.0688**	**1.3832**	**2.4520**	**0.0000**	**5,020.7070**	**5,020.7070**	**1.5817**		**5,060.2501**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0994	0.0680	0.6639	2.2400e-003	0.2464	1.5100e-003	0.2480	0.0654	1.4000e-003	0.0668		223.0418	223.0418	4.8200e-003		223.1625
Total	**0.0994**	**0.0680**	**0.6639**	**2.2400e-003**	**0.2464**	**1.5100e-003**	**0.2480**	**0.0654**	**1.4000e-003**	**0.0668**		**223.0418**	**223.0418**	**4.8200e-003**		**223.1625**

3.5 Dredging - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7638	0.0000	3.7638	2.0689	0.0000	2.0689			0.0000			0.0000
Off-Road	7.5891	66.7812	44.4396	0.1047		2.9780	2.9780		2.7921	2.7921		9,973.2915	9,973.2915	2.8638		10,044.8874
Total	**7.5891**	**66.7812**	**44.4396**	**0.1047**	**3.7638**	**2.9780**	**6.7418**	**2.0689**	**2.7921**	**4.8610**		**9,973.2915**	**9,973.2915**	**2.8638**		**10,044.8874**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.5 Dredging - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.7638	0.0000	3.7638	2.0689	0.0000	2.0689			0.0000			0.0000
Off-Road	7.5891	66.7812	44.4396	0.1047		2.9780	2.9780		2.7921	2.7921	0.0000	9,973.2915	9,973.2915	2.8638		10,044.8874
Total	**7.5891**	**66.7812**	**44.4396**	**0.1047**	**3.7638**	**2.9780**	**6.7418**	**2.0689**	**2.7921**	**4.8610**	**0.0000**	**9,973.2915**	**9,973.2915**	**2.8638**		**10,044.8874**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Dewatering Reach 3 - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3042	3.4012	2.5658	5.4100e-003		0.1374	0.1374		0.1264	0.1264		535.3307	535.3307	0.1694		539.5650
Total	**0.3042**	**3.4012**	**2.5658**	**5.4100e-003**	**0.0000**	**0.1374**	**0.1374**	**0.0000**	**0.1264**	**0.1264**		**535.3307**	**535.3307**	**0.1694**		**539.5650**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.6 Dewatering Reach 3 - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.3042	3.4012	2.5658	5.4100e-003		0.1374	0.1374		0.1264	0.1264	0.0000	535.3307	535.3307	0.1694		539.5650
Total	**0.3042**	**3.4012**	**2.5658**	**5.4100e-003**	**0.0000**	**0.1374**	**0.1374**	**0.0000**	**0.1264**	**0.1264**	**0.0000**	**535.3307**	**535.3307**	**0.1694**		**539.5650**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

3.7 Dredging-Only Trucks - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0398	0.0272	0.2655	8.9000e-004	0.0986	6.1000e-004	0.0992	0.0262	5.6000e-004	0.0267		89.2167	89.2167	1.9300e-003		89.2650
Total	**0.0398**	**0.0272**	**0.2655**	**8.9000e-004**	**0.0986**	**6.1000e-004**	**0.0992**	**0.0262**	**5.6000e-004**	**0.0267**		**89.2167**	**89.2167**	**1.9300e-003**		**89.2650**

3.7 Dredging-Only Trucks - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**			**0.0000**			**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0398	0.0272	0.2655	8.9000e-004	0.0986	6.1000e-004	0.0992	0.0262	5.6000e-004	0.0267		89.2167	89.2167	1.9300e-003		89.2650
Total	**0.0398**	**0.0272**	**0.2655**	**8.9000e-004**	**0.0986**	**6.1000e-004**	**0.0992**	**0.0262**	**5.6000e-004**	**0.0267**		**89.2167**	**89.2167**	**1.9300e-003**		**89.2650**

3.8 Excavation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5925	0.0000	7.5925	4.1476	0.0000	4.1476			0.0000			0.0000
Off-Road	4.0086	30.2032	20.6828	0.0361		1.5291	1.5291		1.4559	1.4559		3,247.3144	3,247.3144	0.7565		3,266.2259
Total	**4.0086**	**30.2032**	**20.6828**	**0.0361**	**7.5925**	**1.5291**	**9.1216**	**4.1476**	**1.4559**	**5.6035**		**3,247.3144**	**3,247.3144**	**0.7565**		**3,266.2259**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2033	7.7135	2.7287	8.5100e-003	0.0948	0.0163	0.1110	0.0261	0.0156	0.0416		955.8793	955.8793	0.1341		959.2310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1325	0.0906	0.8851	2.9800e-003	0.3286	2.0200e-003	0.3306	0.0872	1.8600e-003	0.0890		297.3891	297.3891	6.4300e-003		297.5499
Total	**0.3359**	**7.8041**	**3.6138**	**0.0115**	**0.4233**	**0.0183**	**0.4416**	**0.1132**	**0.0174**	**0.1306**		**1,253.2685**	**1,253.2685**	**0.1405**		**1,256.7809**

3.8 Excavation - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5925	0.0000	7.5925	4.1476	0.0000	4.1476			0.0000			0.0000
Off-Road	4.0086	30.2032	20.6828	0.0361		1.5291	1.5291		1.4559	1.4559	0.0000	3,247.3144	3,247.3144	0.7565		3,266.2259
Total	**4.0086**	**30.2032**	**20.6828**	**0.0361**	**7.5925**	**1.5291**	**9.1216**	**4.1476**	**1.4559**	**5.6035**	**0.0000**	**3,247.3144**	**3,247.3144**	**0.7565**		**3,266.2259**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2033	7.7135	2.7287	8.5100e-003	0.0948	0.0163	0.1110	0.0261	0.0156	0.0416		955.8793	955.8793	0.1341		959.2310
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1325	0.0906	0.8851	2.9800e-003	0.3286	2.0200e-003	0.3306	0.0872	1.8600e-003	0.0890		297.3891	297.3891	6.4300e-003		297.5499
Total	**0.3359**	**7.8041**	**3.6138**	**0.0115**	**0.4233**	**0.0183**	**0.4416**	**0.1132**	**0.0174**	**0.1306**		**1,253.2685**	**1,253.2685**	**0.1405**		**1,256.7809**

3.9 Berm - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5276	0.0000	7.5276	4.1378	0.0000	4.1378			0.0000			0.0000
Off-Road	2.0273	21.2465	11.8182	0.0204		1.0817	1.0817		0.9952	0.9952		2,020.2973	2,020.2973	0.6392		2,036.2773
Total	**2.0273**	**21.2465**	**11.8182**	**0.0204**	**7.5276**	**1.0817**	**8.6094**	**4.1378**	**0.9952**	**5.1330**		**2,020.2973**	**2,020.2973**	**0.6392**		**2,036.2773**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0464	0.0317	0.3098	1.0400e-003	0.1150	7.1000e-004	0.1157	0.0305	6.5000e-004	0.0312		104.0862	104.0862	2.2500e-003		104.1425
Total	**0.0464**	**0.0317**	**0.3098**	**1.0400e-003**	**0.1150**	**7.1000e-004**	**0.1157**	**0.0305**	**6.5000e-004**	**0.0312**		**104.0862**	**104.0862**	**2.2500e-003**		**104.1425**

3.9 Berm - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.5276	0.0000	7.5276	4.1378	0.0000	4.1378			0.0000			0.0000
Off-Road	2.0273	21.2465	11.8182	0.0204		1.0817	1.0817		0.9952	0.9952	0.0000	2,020.2973	2,020.2973	0.6392		2,036.2773
Total	**2.0273**	**21.2465**	**11.8182**	**0.0204**	**7.5276**	**1.0817**	**8.6094**	**4.1378**	**0.9952**	**5.1330**	**0.0000**	**2,020.2973**	**2,020.2973**	**0.6392**		**2,036.2773**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0464	0.0317	0.3098	1.0400e-003	0.1150	7.1000e-004	0.1157	0.0305	6.5000e-004	0.0312		104.0862	104.0862	2.2500e-003		104.1425
Total	**0.0464**	**0.0317**	**0.3098**	**1.0400e-003**	**0.1150**	**7.1000e-004**	**0.1157**	**0.0305**	**6.5000e-004**	**0.0312**		**104.0862**	**104.0862**	**2.2500e-003**		**104.1425**

3.10 Sandbag Dam - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8244	9.3853	6.1775	0.0143		0.3639	0.3639		0.3348	0.3348		1,412.4139	1,412.4139	0.4469		1,423.5857
Total	**0.8244**	**9.3853**	**6.1775**	**0.0143**		**0.3639**	**0.3639**		**0.3348**	**0.3348**		**1,412.4139**	**1,412.4139**	**0.4469**		**1,423.5857**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0398	0.0272	0.2655	8.9000e-004	0.0986	6.1000e-004	0.0992	0.0262	5.6000e-004	0.0267		89.2167	89.2167	1.9300e-003		89.2650
Total	**0.0398**	**0.0272**	**0.2655**	**8.9000e-004**	**0.0986**	**6.1000e-004**	**0.0992**	**0.0262**	**5.6000e-004**	**0.0267**		**89.2167**	**89.2167**	**1.9300e-003**		**89.2650**

3.10 Sandbag Dam - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8244	9.3853	6.1775	0.0143		0.3639	0.3639		0.3348	0.3348	0.0000	1,412.4139	1,412.4139	0.4469		1,423.5857
Total	**0.8244**	**9.3853**	**6.1775**	**0.0143**		**0.3639**	**0.3639**		**0.3348**	**0.3348**	**0.0000**	**1,412.4139**	**1,412.4139**	**0.4469**		**1,423.5857**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0398	0.0272	0.2655	8.9000e-004	0.0986	6.1000e-004	0.0992	0.0262	5.6000e-004	0.0267		89.2167	89.2167	1.9300e-003		89.2650
Total	**0.0398**	**0.0272**	**0.2655**	**8.9000e-004**	**0.0986**	**6.1000e-004**	**0.0992**	**0.0262**	**5.6000e-004**	**0.0267**		**89.2167**	**89.2167**	**1.9300e-003**		**89.2650**

3.11 Site Restoration - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6196	17.8017	11.3746	0.0292		0.6841	0.6841		0.6294	0.6294		2,887.3638	2,887.3638	0.9135		2,910.2021
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6196**	**17.8017**	**11.3746**	**0.0292**		**0.6841**	**0.6841**		**0.6294**	**0.6294**		**2,887.3638**	**2,887.3638**	**0.9135**		**2,910.2021**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0544	0.5311	1.7900e-003	0.1972	1.2100e-003	0.1984	0.0523	1.1200e-003	0.0534		178.4335	178.4335	3.8600e-003		178.5300
Total	**0.0795**	**0.0544**	**0.5311**	**1.7900e-003**	**0.1972**	**1.2100e-003**	**0.1984**	**0.0523**	**1.1200e-003**	**0.0534**		**178.4335**	**178.4335**	**3.8600e-003**		**178.5300**

3.11 Site Restoration - 2019

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6196	17.8017	11.3746	0.0292		0.6841	0.6841		0.6294	0.6294	0.0000	2,887.3638	2,887.3638	0.9135		2,910.2021
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.6196**	**17.8017**	**11.3746**	**0.0292**		**0.6841**	**0.6841**		**0.6294**	**0.6294**	**0.0000**	**2,887.3638**	**2,887.3638**	**0.9135**		**2,910.2021**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0795	0.0544	0.5311	1.7900e-003	0.1972	1.2100e-003	0.1984	0.0523	1.1200e-003	0.0534		178.4335	178.4335	3.8600e-003		178.5300
Total	**0.0795**	**0.0544**	**0.5311**	**1.7900e-003**	**0.1972**	**1.2100e-003**	**0.1984**	**0.0523**	**1.1200e-003**	**0.0534**		**178.4335**	**178.4335**	**3.8600e-003**		**178.5300**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	0.00	0.00	0.00	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8339	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Unmitigated	0.8339	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8304					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.5800e-003	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Total	**0.8339**	**3.5000e-004**	**0.0380**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0810**	**0.0810**	**2.2000e-004**		**0.0864**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8304					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	3.5800e-003	3.5000e-004	0.0380	0.0000		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		0.0810	0.0810	2.2000e-004		0.0864
Total	**0.8339**	**3.5000e-004**	**0.0380**	**0.0000**		**1.4000e-004**	**1.4000e-004**		**1.4000e-004**	**1.4000e-004**		**0.0810**	**0.0810**	**2.2000e-004**		**0.0864**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CALEEMOD Maintenance-Related Results

Butano Creek Channel Reconnection and Resilience Project O&M

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Selected a user defined category with size metric of 1.

Construction Phase - Reflects Conservative O&M Assumptions

Off-road Equipment - Reflects O&M Assumptions

Trips and VMT - Reflects current O&M assumptions

Grading -

Butano Creek Channel Reconnection and Resilience Project O&M - San Mateo County, Annual

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	12.00
tblConstructionPhase	PhaseEndDate	10/15/2018	8/18/2020
tblConstructionPhase	PhaseStartDate	10/13/2018	8/1/2020
tblGrading	MaterialExported	0.00	1,455.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	182.00	292.00
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0115	0.1115	0.1162	2.1000e-004	0.0361	5.5300e-003	0.0416	0.0181	5.3900e-003	0.0235	0.0000	18.0686	18.0686	2.5700e-003	0.0000	18.1329
Maximum	**0.0115**	**0.1115**	**0.1162**	**2.1000e-004**	**0.0361**	**5.5300e-003**	**0.0416**	**0.0181**	**5.3900e-003**	**0.0235**	**0.0000**	**18.0686**	**18.0686**	**2.5700e-003**	**0.0000**	**18.1329**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2020	0.0115	0.1115	0.1162	2.1000e-004	0.0361	5.5300e-003	0.0416	0.0181	5.3900e-003	0.0235	0.0000	18.0686	18.0686	2.5700e-003	0.0000	18.1329
Maximum	**0.0115**	**0.1115**	**0.1162**	**2.1000e-004**	**0.0361**	**5.5300e-003**	**0.0416**	**0.0181**	**5.3900e-003**	**0.0235**	**0.0000**	**18.0686**	**18.0686**	**2.5700e-003**	**0.0000**	**18.1329**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
8	7-1-2020	9-30-2020	0.1319	0.1319
		Highest	0.1319	0.1319

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2020	8/18/2020	5	12	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Pumps	1	24.00	84	0.74
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	7.00	247	0.40
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	10.00	0.00	292.00	25.00	6.60	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0349	0.0000	0.0349	0.0177	0.0000	0.0177	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.0970	0.1094	1.8000e-004		5.5100e-003	5.5100e-003		5.3600e-003	5.3600e-003	0.0000	15.6226	15.6226	2.3700e-003	0.0000	15.6819
Total	**0.0108**	**0.0970**	**0.1094**	**1.8000e-004**	**0.0349**	**5.5100e-003**	**0.0404**	**0.0177**	**5.3600e-003**	**0.0231**	**0.0000**	**15.6226**	**15.6226**	**2.3700e-003**	**0.0000**	**15.6819**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.1000e-004	0.0143	4.4800e-003	2.0000e-005	1.2000e-004	2.0000e-005	1.4000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	1.5510	1.5510	1.9000e-004	0.0000	1.5556
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.4000e-004	2.3900e-003	1.0000e-005	1.0900e-003	1.0000e-005	1.1000e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8950	0.8950	2.0000e-005	0.0000	0.8954
Total	**6.3000e-004**	**0.0145**	**6.8700e-003**	**3.0000e-005**	**1.2100e-003**	**3.0000e-005**	**1.2400e-003**	**3.2000e-004**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**2.4460**	**2.4460**	**2.1000e-004**	**0.0000**	**2.4511**

3.2 Site Preparation - 2020

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0349	0.0000	0.0349	0.0177	0.0000	0.0177	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0108	0.0970	0.1094	1.8000e-004		5.5100e-003	5.5100e-003		5.3600e-003	5.3600e-003	0.0000	15.6226	15.6226	2.3700e-003	0.0000	15.6818
Total	**0.0108**	**0.0970**	**0.1094**	**1.8000e-004**	**0.0349**	**5.5100e-003**	**0.0404**	**0.0177**	**5.3600e-003**	**0.0231**	**0.0000**	**15.6226**	**15.6226**	**2.3700e-003**	**0.0000**	**15.6818**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.1000e-004	0.0143	4.4800e-003	2.0000e-005	1.2000e-004	2.0000e-005	1.4000e-004	3.0000e-005	2.0000e-005	5.0000e-005	0.0000	1.5510	1.5510	1.9000e-004	0.0000	1.5556
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2000e-004	2.4000e-004	2.3900e-003	1.0000e-005	1.0900e-003	1.0000e-005	1.1000e-003	2.9000e-004	1.0000e-005	3.0000e-004	0.0000	0.8950	0.8950	2.0000e-005	0.0000	0.8954
Total	**6.3000e-004**	**0.0145**	**6.8700e-003**	**3.0000e-005**	**1.2100e-003**	**3.0000e-005**	**1.2400e-003**	**3.2000e-004**	**3.0000e-005**	**3.5000e-004**	**0.0000**	**2.4460**	**2.4460**	**2.1000e-004**	**0.0000**	**2.4511**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Butano Creek Channel Reconnection and Resilience Project O&M

San Mateo County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Selected a user defined category with size metric of 1.

Construction Phase - Reflects Conservative O&M Assumptions

Off-road Equipment - Reflects O&M Assumptions

Trips and VMT - Reflects current O&M assumptions

Grading -

Butano Creek Channel Reconnection and Resilience Project O&M - San Mateo County, Summer

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	12.00
tblConstructionPhase	PhaseEndDate	10/15/2018	8/18/2020
tblConstructionPhase	PhaseStartDate	10/13/2018	8/1/2020
tblGrading	MaterialExported	0.00	1,455.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	182.00	292.00
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.9055	18.6046	19.3385	0.0344	6.0249	0.9214	6.9463	3.0121	0.8975	3.9096	0.0000	3,339.8277	3,339.8277	0.4719	0.0000	3,351.6258
Maximum	**1.9055**	**18.6046**	**19.3385**	**0.0344**	**6.0249**	**0.9214**	**6.9463**	**3.0121**	**0.8975**	**3.9096**	**0.0000**	**3,339.8277**	**3,339.8277**	**0.4719**	**0.0000**	**3,351.6258**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.9055	18.6046	19.3385	0.0344	6.0249	0.9214	6.9463	3.0121	0.8975	3.9096	0.0000	3,339.8277	3,339.8277	0.4719	0.0000	3,351.6258
Maximum	**1.9055**	**18.6046**	**19.3385**	**0.0344**	**6.0249**	**0.9214**	**6.9463**	**3.0121**	**0.8975**	**3.9096**	**0.0000**	**3,339.8277**	**3,339.8277**	**0.4719**	**0.0000**	**3,351.6258**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2020	8/18/2020	5	12	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Pumps	1	24.00	84	0.74
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	7.00	247	0.40
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	10.00	0.00	292.00	25.00	6.60	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.8133	0.0000	5.8133	2.9558	0.0000	2.9558			0.0000			0.0000
Off-Road	1.8039	16.1673	18.2252	0.0301		0.9176	0.9176		0.8939	0.8939		2,870.1594	2,870.1594	0.4356		2,881.0490
Total	**1.8039**	**16.1673**	**18.2252**	**0.0301**	**5.8133**	**0.9176**	**6.7309**	**2.9558**	**0.8939**	**3.8497**		**2,870.1594**	**2,870.1594**	**0.4356**		**2,881.0490**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0491	2.4026	0.6760	2.6100e-003	0.0216	2.7000e-003	0.0243	5.9500e-003	2.5800e-003	8.5400e-003		294.9841	294.9841	0.0331		295.8123
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0525	0.0347	0.4373	1.7500e-003	0.1900	1.0700e-003	0.1911	0.0504	9.8000e-004	0.0514		174.6842	174.6842	3.2100e-003		174.7646
Total	**0.1016**	**2.4373**	**1.1133**	**4.3600e-003**	**0.2116**	**3.7700e-003**	**0.2154**	**0.0563**	**3.5600e-003**	**0.0599**		**469.6683**	**469.6683**	**0.0363**		**470.5768**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.8133	0.0000	5.8133	2.9558	0.0000	2.9558			0.0000			0.0000
Off-Road	1.8039	16.1673	18.2252	0.0301		0.9176	0.9176		0.8939	0.8939	0.0000	2,870.1594	2,870.1594	0.4356		2,881.0490
Total	**1.8039**	**16.1673**	**18.2252**	**0.0301**	**5.8133**	**0.9176**	**6.7309**	**2.9558**	**0.8939**	**3.8497**	**0.0000**	**2,870.1594**	**2,870.1594**	**0.4356**		**2,881.0490**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0491	2.4026	0.6760	2.6100e-003	0.0216	2.7000e-003	0.0243	5.9500e-003	2.5800e-003	8.5400e-003		294.9841	294.9841	0.0331		295.8123
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0525	0.0347	0.4373	1.7500e-003	0.1900	1.0700e-003	0.1911	0.0504	9.8000e-004	0.0514		174.6842	174.6842	3.2100e-003		174.7646
Total	**0.1016**	**2.4373**	**1.1133**	**4.3600e-003**	**0.2116**	**3.7700e-003**	**0.2154**	**0.0563**	**3.5600e-003**	**0.0599**		**469.6683**	**469.6683**	**0.0363**		**470.5768**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Butano Creek Channel Reconnection and Resilience Project O&M

San Mateo County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Selected a user defined category with size metric of 1.

Construction Phase - Reflects Conservative O&M Assumptions

Off-road Equipment - Reflects O&M Assumptions

Trips and VMT - Reflects current O&M assumptions

Grading -

Butano Creek Channel Reconnection and Resilience Project O&M - San Mateo County, Winter

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	1.00	12.00
tblConstructionPhase	PhaseEndDate	10/15/2018	8/18/2020
tblConstructionPhase	PhaseStartDate	10/13/2018	8/1/2020
tblGrading	MaterialExported	0.00	1,455.00
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentType		Pumps
tblOffRoadEquipment	OffRoadEquipmentType	Graders	Excavators
tblOffRoadEquipment	OffRoadEquipmentType	Rubber Tired Dozers	Skid Steer Loaders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	1.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Site Preparation
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	HaulingTripNumber	182.00	292.00
tblTripsAndVMT	WorkerTripLength	10.80	25.00
tblTripsAndVMT	WorkerTripNumber	15.00	10.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.9202	18.5492	19.4519	0.0341	6.0249	0.9220	6.9469	3.0121	0.8981	3.9102	0.0000	3,305.0315	3,305.0315	0.4743	0.0000	3,316.8892
Maximum	**1.9202**	**18.5492**	**19.4519**	**0.0341**	**6.0249**	**0.9220**	**6.9469**	**3.0121**	**0.8981**	**3.9102**	**0.0000**	**3,305.0315**	**3,305.0315**	**0.4743**	**0.0000**	**3,316.8892**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2020	1.9202	18.5492	19.4519	0.0341	6.0249	0.9220	6.9469	3.0121	0.8981	3.9102	0.0000	3,305.0315	3,305.0315	0.4743	0.0000	3,316.8892
Maximum	**1.9202**	**18.5492**	**19.4519**	**0.0341**	**6.0249**	**0.9220**	**6.9469**	**3.0121**	**0.8981**	**3.9102**	**0.0000**	**3,305.0315**	**3,305.0315**	**0.4743**	**0.0000**	**3,316.8892**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**	**0.0000**	**2.3000e-004**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	8/1/2020	8/18/2020	5	12	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Pumps	1	24.00	84	0.74
Site Preparation	Graders	0	8.00	187	0.41
Site Preparation	Rubber Tired Dozers	0	7.00	247	0.40
Site Preparation	Excavators	1	8.00	158	0.38
Site Preparation	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Skid Steer Loaders	1	8.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	6	10.00	0.00	292.00	25.00	6.60	1.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2020

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.8133	0.0000	5.8133	2.9558	0.0000	2.9558			0.0000			0.0000
Off-Road	1.8039	16.1673	18.2252	0.0301		0.9176	0.9176		0.8939	0.8939		2,870.1594	2,870.1594	0.4356		2,881.0490
Total	**1.8039**	**16.1673**	**18.2252**	**0.0301**	**5.8133**	**0.9176**	**6.7309**	**2.9558**	**0.8939**	**3.8497**		**2,870.1594**	**2,870.1594**	**0.4356**		**2,881.0490**

3.2 Site Preparation - 2020

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0543	2.3391	0.8222	2.4000e-003	0.0216	3.3100e-003	0.0249	5.9500e-003	3.1600e-003	9.1200e-003		271.0701	271.0701	0.0357		271.9634
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0620	0.0429	0.4045	1.6400e-003	0.1900	1.0700e-003	0.1911	0.0504	9.8000e-004	0.0514		163.8021	163.8021	2.9900e-003		163.8768
Total	**0.1163**	**2.3820**	**1.2267**	**4.0400e-003**	**0.2116**	**4.3800e-003**	**0.2160**	**0.0563**	**4.1400e-003**	**0.0605**		**434.8721**	**434.8721**	**0.0387**		**435.8402**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					5.8133	0.0000	5.8133	2.9558	0.0000	2.9558			0.0000			0.0000
Off-Road	1.8039	16.1673	18.2252	0.0301		0.9176	0.9176		0.8939	0.8939	0.0000	2,870.1594	2,870.1594	0.4356		2,881.0490
Total	**1.8039**	**16.1673**	**18.2252**	**0.0301**	**5.8133**	**0.9176**	**6.7309**	**2.9558**	**0.8939**	**3.8497**	**0.0000**	**2,870.1594**	**2,870.1594**	**0.4356**		**2,881.0490**

3.2 Site Preparation - 2020

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0543	2.3391	0.8222	2.4000e-003	0.0216	3.3100e-003	0.0249	5.9500e-003	3.1600e-003	9.1200e-003		271.0701	271.0701	0.0357		271.9634
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0620	0.0429	0.4045	1.6400e-003	0.1900	1.0700e-003	0.1911	0.0504	9.8000e-004	0.0514		163.8021	163.8021	2.9900e-003		163.8768
Total	**0.1163**	**2.3820**	**1.2267**	**4.0400e-003**	**0.2116**	**4.3800e-003**	**0.2160**	**0.0563**	**4.1400e-003**	**0.0605**		**434.8721**	**434.8721**	**0.0387**		**435.8402**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Unmitigated	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.0000e-005	0.0000	1.0000e-004	0.0000		0.0000	0.0000		0.0000	0.0000		2.2000e-004	2.2000e-004	0.0000		2.3000e-004
Total	**1.0000e-005**	**0.0000**	**1.0000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**2.2000e-004**	**2.2000e-004**	**0.0000**		**2.3000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

CALEEMOD Construction-Related Results (Mitigation Included to Demonstrate Feasibility)

Butano Creek Channel Reconnection and Resilience Project

San Mateo County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	370.00	Acre	370.00	16,117,200.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	70
Climate Zone	5			**Operational Year**	2020
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	641.35	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Based Acreage on Area of Potential Effect in Figure 7

Construction Phase - Based on PD and Data Requests

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - No demolition phase

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - Based on PD & Data Requests. Air boats & marsh master entered as Other Construction Equipment. Dredge eq. entered as Other Material Hauling equipment.

Off-road Equipment - Based on PD and Data Requests. Phase only inlcudes worker trips. Hauling trips covered under excavation phase

Off-road Equipment - Based on PD and Data Request

Off-road Equipment - Based on PD and data requests

Off-road Equipment - Based on PD and Data Requests

Off-road Equipment - Updated to reflect data request and PD. Dredge tender (shallow water tug) classified as Other Material Handling Equipment

Off-road Equipment - Based on PD and Data Requests

Trips and VMT - Based on PD and Data Requests. Hauling trips reflect half of excavated/dredged material being transported by truck to fill/use areas.

Grading - 24,673 CY by truck to fill/use areas. Emissions from material piped via dredging are covered under equipment in the dredging construction phase.

Vehicle Trips - Operational Emissions Modeled Separately

Water And Wastewater - Operational Emissions Modeled Separately

Solid Waste - Operational Emissions Modeled Separately

Construction Off-road Equipment Mitigation - assumed Tier 3 equipment for all off-road equipment other than trucks to demonstrate NOX reduction feasibility

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	9.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstEquipMitigation	Tier	No Change	Tier 3
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tblConstructionPhase	NumDays	620.00	43.00
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tblConstructionPhase	NumDays	240.00	20.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00

tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblConstructionPhase	NumDaysWeek	5.00	6.00
tblGrading	AcresOfGrading	0.00	6.00
tblGrading	MaterialExported	0.00	24,673.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
tblOffRoadEquipment	HorsePower	158.00	150.00
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tblOffRoadEquipment	HorsePower	172.00	560.00
tblOffRoadEquipment	HorsePower	172.00	86.00
tblOffRoadEquipment	HorsePower	168.00	160.00
tblOffRoadEquipment	HorsePower	168.00	160.00
tblOffRoadEquipment	HorsePower	168.00	345.00
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tblOffRoadEquipment	HorsePower	84.00	40.00
tblOffRoadEquipment	HorsePower	84.00	40.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
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tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	1.00
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tblOffRoadEquipment	UsageHours	8.00	0.00
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tblOffRoadEquipment	UsageHours	8.00	10.00
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tblOffRoadEquipment	UsageHours	8.00	0.00

tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	2.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblSolidWaste	SolidWasteGenerationRate	31.82	0.00
tblTripsAndVMT	HaulingTripLength	20.00	1.50
tblTripsAndVMT	VendorTripNumber	2,642.00	0.00
tblTripsAndVMT	WorkerTripNumber	15.00	24.00
tblTripsAndVMT	WorkerTripNumber	33.00	30.00
tblTripsAndVMT	WorkerTripNumber	60.00	0.00
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tblTripsAndVMT	WorkerTripNumber	8.00	14.00
tblTripsAndVMT	WorkerTripNumber	6,769.00	12.00
tblVehicleTrips	CC_TL	6.60	0.00
tblVehicleTrips	CNW_TL	6.60	0.00
tblVehicleTrips	CW_TL	14.70	0.00
tblVehicleTrips	ST_TR	22.75	0.00
tblVehicleTrips	SU_TR	16.74	0.00
tblVehicleTrips	WD_TR	1.89	0.00
tblWater	OutdoorWaterUseRate	440,848,099.37	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	9.4600e-003	0.1010	0.0508	1.3000e-004	0.0190	4.2800e-003	0.0233	0.0104	3.9400e-003	0.0143	0.0000	11.6250	11.6250	3.5700e-003	0.0000	11.7143
2019	0.3342	3.0325	1.9913	4.5000e-003	0.3236	0.1317	0.4553	0.1719	0.1235	0.2954	0.0000	392.1507	392.1507	0.1059	0.0000	394.7987
Maximum	**0.3342**	**3.0325**	**1.9913**	**4.5000e-003**	**0.3236**	**0.1317**	**0.4553**	**0.1719**	**0.1235**	**0.2954**	**0.0000**	**392.1507**	**392.1507**	**0.1059**	**0.0000**	**394.7987**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	5.9700e-003	0.0724	0.0533	1.3000e-004	0.0190	2.7500e-003	0.0218	0.0104	2.6000e-003	0.0130	0.0000	11.6250	11.6250	3.5700e-003	0.0000	11.7143
2019	0.1802	2.4611	2.1554	4.5000e-003	0.3236	0.1052	0.4288	0.1719	0.1024	0.2743	0.0000	392.1503	392.1503	0.1059	0.0000	394.7983
Maximum	**0.1802**	**2.4611**	**2.1554**	**4.5000e-003**	**0.3236**	**0.1052**	**0.4288**	**0.1719**	**0.1024**	**0.2743**	**0.0000**	**392.1503**	**392.1503**	**0.1059**	**0.0000**	**394.7983**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**45.83**	**19.15**	**-8.16**	**0.00**	**0.00**	**20.65**	**5.87**	**0.00**	**17.59**	**7.23**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	10-1-2018	12-31-2018	0.0789	0.0560
3	4-1-2019	6-30-2019	1.7517	1.4037
4	7-1-2019	9-30-2019	1.6366	1.2550
		Highest	1.7517	1.4037

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1519	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1519**	**3.0000e-005**	**3.4200e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6100e-003**	**6.6100e-003**	**2.0000e-005**	**0.0000**	**7.0500e-003**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1519	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1519**	**3.0000e-005**	**3.4200e-003**	**0.0000**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6100e-003**	**6.6100e-003**	**2.0000e-005**	**0.0000**	**7.0500e-003**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	10/1/2018	9/30/2018	5	0	
2	Site Prep - Fall Veg Removal	Site Preparation	10/1/2018	10/5/2018	5	5	
3	Site Preparation	Site Preparation	6/1/2019	6/24/2019	6	20	
4	Dredging	Grading	6/1/2019	7/24/2019	6	46	
5	Dewatering Reach 3	Grading	6/1/2019	6/7/2019	6	6	
6	Dredging-Only Trucks	Grading	6/1/2019	8/15/2019	6	65	
7	Excavation	Grading	6/8/2019	7/27/2019	6	43	
8	Berm	Grading	8/9/2019	8/20/2019	6	10	
9	Sandbag Dam	Building Construction	8/23/2019	8/29/2019	5	5	
10	Site Restoration	Paving	8/30/2019	9/26/2019	6	24	

Acres of Grading (Site Preparation Phase): 6

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Site Prep - Fall Veg Removal	Excavators	1	10.00	158	0.38
Site Prep - Fall Veg Removal	Off-Highway Trucks	2	10.00	402	0.38
Site Prep - Fall Veg Removal	Rubber Tired Dozers	1	10.00	247	0.40

Site Preparation	Cranes	1	1.60	400	0.29
Site Preparation	Excavators	1	4.30	158	0.38
Site Preparation	Forklifts	1	2.00	89	0.20
Site Preparation	Forklifts	3	10.00	89	0.20
Site Preparation	Off-Highway Trucks	3	7.00	402	0.38
Site Preparation	Other Material Handling Equipment	1	1.00	160	0.40
Site Preparation	Pumps	1	1.00	40	0.74
Site Preparation	Rubber Tired Dozers	1	2.50	140	0.40
Site Preparation	Skid Steer Loaders	1	10.00	65	0.37
Dredging	Air Compressors	4	10.00	10	0.48
Dredging	Excavators	1	5.00	150	0.38
Dredging	Excavators	1	1.30	158	0.38
Dredging	Off-Highway Trucks	3	10.00	402	0.38
Dredging	Other Construction Equipment	3	6.00	560	0.42
Dredging	Other Construction Equipment	1	8.00	86	0.42
Dredging	Other Material Handling Equipment	1	10.00	160	0.40
Dredging	Other Material Handling Equipment	1	10.00	345	0.40
Dredging	Pumps	6	6.00	40	0.74
Dredging	Rubber Tired Dozers	1	5.00	247	0.40
Dredging	Skid Steer Loaders	1	2.00	65	0.37
Dredging	Tractors/Loaders/Backhoes	1	2.00	97	0.37
Dewatering Reach 3	Excavators	1	5.00	150	0.38
Dewatering Reach 3	Rubber Tired Loaders	1	3.00	203	0.36
Excavation	Excavators	1	10.00	150	0.38
Excavation	Pumps	4	10.00	40	0.74
Excavation	Rubber Tired Dozers	1	10.00	247	0.40
Excavation	Rubber Tired Loaders	1	1.30	203	0.36

Excavation	Scrapers	0	0.00	367	0.48
Berm	Excavators	1	10.00	158	0.38
Berm	Graders	0	0.00	187	0.41
Berm	Pavers	0	0.00	130	0.42
Berm	Paving Equipment	0	0.00	132	0.36
Berm	Rollers	1	10.00	80	0.38
Berm	Rubber Tired Dozers	1	10.00	247	0.40
Berm	Scrapers	0	0.00	367	0.48
Berm	Tractors/Loaders/Backhoes	0	0.00	97	0.37
Sandbag Dam	Cranes	0	0.00	231	0.29
Sandbag Dam	Excavators	1	10.00	158	0.38
Sandbag Dam	Forklifts	0	0.00	89	0.20
Sandbag Dam	Generator Sets	0	0.00	84	0.74
Sandbag Dam	Rubber Tired Loaders	1	10.00	203	0.36
Sandbag Dam	Welders	0	0.00	46	0.45
Site Restoration	Excavators	1	7.50	158	0.38
Site Restoration	Off-Highway Trucks	2	4.00	402	0.38
Site Restoration	Other Construction Equipment	1	1.00	160	0.42
Site Restoration	Rubber Tired Loaders	1	10.00	203	0.36
Site Restoration	Skid Steer Loaders	1	10.00	65	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	0	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Prep - Fall Veg Removal	4	10.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	13	30.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dredging	24	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dewatering Reach 3	2	0.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Dredging-Only Trucks			0.00	0.00	10.80	6.60				
Excavation	7	40.00	0.00	3,084.00	10.80	6.60	1.50	LD_Mix	HDT_Mix	HHDT
Berm	3	14.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Sandbag Dam	2	12.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT
Site Restoration	6	24.00	0.00	0.00	10.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.3 Site Prep - Fall Veg Removal - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0188	0.0000	0.0188	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.3800e-003	0.1010	0.0502	1.3000e-004		4.2800e-003	4.2800e-003		3.9300e-003	3.9300e-003	0.0000	11.4504	11.4504	3.5600e-003	0.0000	11.5395
Total	**9.3800e-003**	**0.1010**	**0.0502**	**1.3000e-004**	**0.0188**	**4.2800e-003**	**0.0231**	**0.0103**	**3.9300e-003**	**0.0143**	**0.0000**	**11.4504**	**11.4504**	**3.5600e-003**	**0.0000**	**11.5395**

3.3 Site Prep - Fall Veg Removal - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.0000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1747	0.1747	0.0000	0.0000	0.1748
Total	**8.0000e-005**	**6.0000e-005**	**6.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1747**	**0.1747**	**0.0000**	**0.0000**	**0.1748**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0188	0.0000	0.0188	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.8800e-003	0.0723	0.0527	1.3000e-004		2.7500e-003	2.7500e-003		2.6000e-003	2.6000e-003	0.0000	11.4503	11.4503	3.5600e-003	0.0000	11.5395
Total	**5.8800e-003**	**0.0723**	**0.0527**	**1.3000e-004**	**0.0188**	**2.7500e-003**	**0.0216**	**0.0103**	**2.6000e-003**	**0.0129**	**0.0000**	**11.4503**	**11.4503**	**3.5600e-003**	**0.0000**	**11.5395**

3.3 Site Prep - Fall Veg Removal - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-005	6.0000e-005	6.0000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1747	0.1747	0.0000	0.0000	0.1748
Total	**8.0000e-005**	**6.0000e-005**	**6.0000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1747**	**0.1747**	**0.0000**	**0.0000**	**0.1748**

3.4 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0107	0.0000	0.0107	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0322	0.3219	0.2192	5.1000e-004		0.0150	0.0150		0.0138	0.0138	0.0000	45.5471	45.5471	0.0144	0.0000	45.9058
Total	**0.0322**	**0.3219**	**0.2192**	**5.1000e-004**	**0.0220**	**0.0150**	**0.0370**	**0.0107**	**0.0138**	**0.0245**	**0.0000**	**45.5471**	**45.5471**	**0.0144**	**0.0000**	**45.9058**

3.4 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	6.2000e-004	6.4400e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0311	2.0311	4.0000e-005	0.0000	2.0322
Total	**8.9000e-004**	**6.2000e-004**	**6.4400e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0311**	**2.0311**	**4.0000e-005**	**0.0000**	**2.0322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0220	0.0000	0.0220	0.0107	0.0000	0.0107	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.2738	0.2220	5.1000e-004		0.0120	0.0120		0.0114	0.0114	0.0000	45.5470	45.5470	0.0144	0.0000	45.9058
Total	**0.0227**	**0.2738**	**0.2220**	**5.1000e-004**	**0.0220**	**0.0120**	**0.0340**	**0.0107**	**0.0114**	**0.0221**	**0.0000**	**45.5470**	**45.5470**	**0.0144**	**0.0000**	**45.9058**

3.4 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.9000e-004	6.2000e-004	6.4400e-003	2.0000e-005	2.3600e-003	2.0000e-005	2.3800e-003	6.3000e-004	1.0000e-005	6.4000e-004	0.0000	2.0311	2.0311	4.0000e-005	0.0000	2.0322
Total	**8.9000e-004**	**6.2000e-004**	**6.4400e-003**	**2.0000e-005**	**2.3600e-003**	**2.0000e-005**	**2.3800e-003**	**6.3000e-004**	**1.0000e-005**	**6.4000e-004**	**0.0000**	**2.0311**	**2.0311**	**4.0000e-005**	**0.0000**	**2.0322**

3.5 Dredging - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0866	0.0000	0.0866	0.0476	0.0000	0.0476	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1746	1.5360	1.0221	2.4100e-003		0.0685	0.0685		0.0642	0.0642	0.0000	208.0952	208.0952	0.0598	0.0000	209.5891
Total	**0.1746**	**1.5360**	**1.0221**	**2.4100e-003**	**0.0866**	**0.0685**	**0.1551**	**0.0476**	**0.0642**	**0.1118**	**0.0000**	**208.0952**	**208.0952**	**0.0598**	**0.0000**	**209.5891**

3.5 Dredging - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0866	0.0000	0.0866	0.0476	0.0000	0.0476	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1051	1.3142	1.1127	2.4100e-003		0.0583	0.0583		0.0564	0.0564	0.0000	208.0950	208.0950	0.0598	0.0000	209.5888
Total	**0.1051**	**1.3142**	**1.1127**	**2.4100e-003**	**0.0866**	**0.0583**	**0.1448**	**0.0476**	**0.0564**	**0.1040**	**0.0000**	**208.0950**	**208.0950**	**0.0598**	**0.0000**	**209.5888**

3.5 Dredging - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.6 Dewatering Reach 3 - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.1000e-004	0.0102	7.7000e-003	2.0000e-005		4.1000e-004	4.1000e-004		3.8000e-004	3.8000e-004	0.0000	1.4569	1.4569	4.6000e-004	0.0000	1.4685
Total	**9.1000e-004**	**0.0102**	**7.7000e-003**	**2.0000e-005**	**0.0000**	**4.1000e-004**	**4.1000e-004**	**0.0000**	**3.8000e-004**	**3.8000e-004**	**0.0000**	**1.4569**	**1.4569**	**4.6000e-004**	**0.0000**	**1.4685**

3.6 Dewatering Reach 3 - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0000e-004	7.7400e-003	0.0107	2.0000e-005		3.4000e-004	3.4000e-004		3.4000e-004	3.4000e-004	0.0000	1.4569	1.4569	4.6000e-004	0.0000	1.4685
Total	**4.0000e-004**	**7.7400e-003**	**0.0107**	**2.0000e-005**	**0.0000**	**3.4000e-004**	**3.4000e-004**	**0.0000**	**3.4000e-004**	**3.4000e-004**	**0.0000**	**1.4569**	**1.4569**	**4.6000e-004**	**0.0000**	**1.4685**

3.6 Dewatering Reach 3 - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Dredging-Only Trucks - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Dredging-Only Trucks - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.7 Dredging-Only Trucks - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.8 Excavation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1632	0.0000	0.1632	0.0892	0.0000	0.0892	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0862	0.6494	0.4447	7.8000e-004		0.0329	0.0329		0.0313	0.0313	0.0000	63.3372	63.3372	0.0148	0.0000	63.7060
Total	**0.0862**	**0.6494**	**0.4447**	**7.8000e-004**	**0.1632**	**0.0329**	**0.1961**	**0.0892**	**0.0313**	**0.1205**	**0.0000**	**63.3372**	**63.3372**	**0.0148**	**0.0000**	**63.7060**

3.8 Excavation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1500e-003	0.1686	0.0534	1.9000e-004	1.9600e-003	3.2000e-004	2.2800e-003	5.4000e-004	3.0000e-004	8.5000e-004	0.0000	19.4342	19.4342	2.5200e-003	0.0000	19.4971
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5400e-003	1.7900e-003	0.0185	6.0000e-005	6.7700e-003	4.0000e-005	6.8100e-003	1.8000e-003	4.0000e-005	1.8400e-003	0.0000	5.8225	5.8225	1.2000e-004	0.0000	5.8256
Total	**6.6900e-003**	**0.1703**	**0.0718**	**2.5000e-004**	**8.7300e-003**	**3.6000e-004**	**9.0900e-003**	**2.3400e-003**	**3.4000e-004**	**2.6900e-003**	**0.0000**	**25.2567**	**25.2567**	**2.6400e-003**	**0.0000**	**25.3227**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1632	0.0000	0.1632	0.0892	0.0000	0.0892	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0257	0.4416	0.4635	7.8000e-004		0.0233	0.0233		0.0233	0.0233	0.0000	63.3371	63.3371	0.0148	0.0000	63.7059
Total	**0.0257**	**0.4416**	**0.4635**	**7.8000e-004**	**0.1632**	**0.0233**	**0.1865**	**0.0892**	**0.0233**	**0.1124**	**0.0000**	**63.3371**	**63.3371**	**0.0148**	**0.0000**	**63.7059**

3.8 Excavation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	4.1500e-003	0.1686	0.0534	1.9000e-004	1.9600e-003	3.2000e-004	2.2800e-003	5.4000e-004	3.0000e-004	8.5000e-004	0.0000	19.4342	19.4342	2.5200e-003	0.0000	19.4971
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.5400e-003	1.7900e-003	0.0185	6.0000e-005	6.7700e-003	4.0000e-005	6.8100e-003	1.8000e-003	4.0000e-005	1.8400e-003	0.0000	5.8225	5.8225	1.2000e-004	0.0000	5.8256
Total	**6.6900e-003**	**0.1703**	**0.0718**	**2.5000e-004**	**8.7300e-003**	**3.6000e-004**	**9.0900e-003**	**2.3400e-003**	**3.4000e-004**	**2.6900e-003**	**0.0000**	**25.2567**	**25.2567**	**2.6400e-003**	**0.0000**	**25.3227**

3.9 Berm - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0376	0.0000	0.0376	0.0207	0.0000	0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0101	0.1062	0.0591	1.0000e-004		5.4100e-003	5.4100e-003		4.9800e-003	4.9800e-003	0.0000	9.1639	9.1639	2.9000e-003	0.0000	9.2364
Total	**0.0101**	**0.1062**	**0.0591**	**1.0000e-004**	**0.0376**	**5.4100e-003**	**0.0431**	**0.0207**	**4.9800e-003**	**0.0257**	**0.0000**	**9.1639**	**9.1639**	**2.9000e-003**	**0.0000**	**9.2364**

3.9 Berm - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.5000e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4739	0.4739	1.0000e-005	0.0000	0.4742
Total	**2.1000e-004**	**1.5000e-004**	**1.5000e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4739**	**0.4739**	**1.0000e-005**	**0.0000**	**0.4742**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0376	0.0000	0.0376	0.0207	0.0000	0.0207	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.5200e-003	0.0546	0.0647	1.0000e-004		2.6200e-003	2.6200e-003		2.5500e-003	2.5500e-003	0.0000	9.1639	9.1639	2.9000e-003	0.0000	9.2364
Total	**3.5200e-003**	**0.0546**	**0.0647**	**1.0000e-004**	**0.0376**	**2.6200e-003**	**0.0403**	**0.0207**	**2.5500e-003**	**0.0232**	**0.0000**	**9.1639**	**9.1639**	**2.9000e-003**	**0.0000**	**9.2364**

3.9 Berm - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.1000e-004	1.5000e-004	1.5000e-003	1.0000e-005	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4739	0.4739	1.0000e-005	0.0000	0.4742
Total	**2.1000e-004**	**1.5000e-004**	**1.5000e-003**	**1.0000e-005**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4739**	**0.4739**	**1.0000e-005**	**0.0000**	**0.4742**

3.10 Sandbag Dam - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.0600e-003	0.0235	0.0154	4.0000e-005		9.1000e-004	9.1000e-004		8.4000e-004	8.4000e-004	0.0000	3.2033	3.2033	1.0100e-003	0.0000	3.2286
Total	**2.0600e-003**	**0.0235**	**0.0154**	**4.0000e-005**		**9.1000e-004**	**9.1000e-004**		**8.4000e-004**	**8.4000e-004**	**0.0000**	**3.2033**	**3.2033**	**1.0100e-003**	**0.0000**	**3.2286**

3.10 Sandbag Dam - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.4000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2031	0.2031	0.0000	0.0000	0.2032
Total	**9.0000e-005**	**6.0000e-005**	**6.4000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2031**	**0.2031**	**0.0000**	**0.0000**	**0.2032**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.8000e-004	0.0170	0.0227	4.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	3.2033	3.2033	1.0100e-003	0.0000	3.2286
Total	**8.8000e-004**	**0.0170**	**0.0227**	**4.0000e-005**		**7.3000e-004**	**7.3000e-004**		**7.3000e-004**	**7.3000e-004**	**0.0000**	**3.2033**	**3.2033**	**1.0100e-003**	**0.0000**	**3.2286**

3.10 Sandbag Dam - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	6.0000e-005	6.4000e-004	0.0000	2.4000e-004	0.0000	2.4000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.2031	0.2031	0.0000	0.0000	0.2032
Total	**9.0000e-005**	**6.0000e-005**	**6.4000e-004**	**0.0000**	**2.4000e-004**	**0.0000**	**2.4000e-004**	**6.0000e-005**	**0.0000**	**6.0000e-005**	**0.0000**	**0.2031**	**0.2031**	**0.0000**	**0.0000**	**0.2032**

3.11 Site Restoration - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0194	0.2136	0.1365	3.5000e-004		8.2100e-003	8.2100e-003		7.5500e-003	7.5500e-003	0.0000	31.4325	31.4325	9.9400e-003	0.0000	31.6811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0194**	**0.2136**	**0.1365**	**3.5000e-004**		**8.2100e-003**	**8.2100e-003**		**7.5500e-003**	**7.5500e-003**	**0.0000**	**31.4325**	**31.4325**	**9.9400e-003**	**0.0000**	**31.6811**

3.11 Site Restoration - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	6.0000e-004	6.1800e-003	2.0000e-005	2.2700e-003	1.0000e-005	2.2800e-003	6.0000e-004	1.0000e-005	6.2000e-004	0.0000	1.9499	1.9499	4.0000e-005	0.0000	1.9509
Total	**8.5000e-004**	**6.0000e-004**	**6.1800e-003**	**2.0000e-005**	**2.2700e-003**	**1.0000e-005**	**2.2800e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.9499**	**1.9499**	**4.0000e-005**	**0.0000**	**1.9509**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0133	0.1803	0.1724	3.5000e-004		7.5900e-003	7.5900e-003		7.3400e-003	7.3400e-003	0.0000	31.4324	31.4324	9.9400e-003	0.0000	31.6811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0133**	**0.1803**	**0.1724**	**3.5000e-004**		**7.5900e-003**	**7.5900e-003**		**7.3400e-003**	**7.3400e-003**	**0.0000**	**31.4324**	**31.4324**	**9.9400e-003**	**0.0000**	**31.6811**

3.11 Site Restoration - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	6.0000e-004	6.1800e-003	2.0000e-005	2.2700e-003	1.0000e-005	2.2800e-003	6.0000e-004	1.0000e-005	6.2000e-004	0.0000	1.9499	1.9499	4.0000e-005	0.0000	1.9509
Total	**8.5000e-004**	**6.0000e-004**	**6.1800e-003**	**2.0000e-005**	**2.2700e-003**	**1.0000e-005**	**2.2800e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.9499**	**1.9499**	**4.0000e-005**	**0.0000**	**1.9509**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
City Park	0.00	0.00	0.00	33.00	48.00	19.00	66	28	6

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.490452	0.049742	0.253638	0.136789	0.017926	0.006526	0.021436	0.006323	0.003943	0.003278	0.008771	0.000435	0.000741

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1519	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Unmitigated	0.1519	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1515					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Total	**0.1519**	**3.0000e-005**	**3.4200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6100e-003**	**6.6100e-003**	**2.0000e-005**	**0.0000**	**7.0500e-003**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1515					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	3.2000e-004	3.0000e-005	3.4200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	6.6100e-003	6.6100e-003	2.0000e-005	0.0000	7.0500e-003
Total	**0.1519**	**3.0000e-005**	**3.4200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**6.6100e-003**	**6.6100e-003**	**2.0000e-005**	**0.0000**	**7.0500e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

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

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix C

Lists of Special-Status Species Known to Occur in the Project Area

The potential for each species to occur in the Project Area was assessed using the criteria outlined below.

None: the area contains a complete lack of suitable habitat, the local range for the species is restricted, and/or the species is extirpated in this region.

Not Expected: suitable habitat or key habitat elements might be present but might be of poor quality or isolated from the nearest extant occurrences, and/or the species is not known to occur in the area.

Possible: presence of suitable habitat or key habitat elements that potentially support the species.

Present: the species was either observed directly or its presence was confirmed by field investigations or in previous studies in the area.

Table C-1. Special Status Plants

Name	Listing status* (Federal/ State/CNPS)	Habitat and Flowering Period	Potential to Occur in the Project
Acanthomintha duttonii San Mateo thorn-mint	FE / SE / 1B.1	Chaparral, valley and foothill grassland. Uncommon serpentinite vertisol clays; in relatively open areas. 50-300 meters. Blooms April through June.	**None.** Suitable habitat is not present in the Project.
Agrostis blasdalei Blasdale's bent grass	- / - / 1B.2	Coastal dunes, coastal bluff scrub, coastal prairie. Sandy or gravelly soil close to rocks; often in nutrient-poor soil with sparse vegetation. 5-365 meters. Blooms May through July.	**Not expected.** Marginally suitable habitat is present in the Project.
Allium peninsulare var. *franciscanum* Franciscan onion	- / - / 1B.2	Cismontane woodland, valley and foothill grassland. Clay soils; often on serpentine; sometimes on volcanics. Dry hillsides. 5-350 meters. Blooms May through June.	**None.** Suitable habitat is not present in the Project.
Anomobryum julaceum slender silver moss	- / - / 4.2	Broadleafed upland forest, lower montane coniferous forest, north coast coniferous forest. Moss which grows on damp rocks and soil; acidic substrates. Usually seen on roadcuts. 100-1000 meters.	**None.** Suitable habitat is not present in the Project.
Arctostaphylos andersonii Anderson's manzanita	- / - / 1B.2	Broadleafed upland forest, chaparral, north coast coniferous forest. Open sites, redwood forest. 60-760 meters. Blooms November through May.	**None.** Suitable habitat is not present in the Project.
Arctostaphylos regismontana Kings Mountain manzanita	- / - / 1B.2	Broadleafed upland forest, chaparral, north coast coniferous forest. Granitic or sandstone outcrops. 240-705 meters. Blooms December through April.	**None.** Suitable habitat is not present in the Project.
Astragalus nuttallii var. *nuttallii* ocean bluff milk-vetch	- / - / 4.2	Coastal bluff scrub, coastal dunes. 3-120 meters. Blooms January through November.	**Not expected.** Marginally suitable habitat is present in the Project.
Astragalus pycnostachyus var. *pycnostachyus* coastal marsh milk-vetch	- / - / 1B.2	Coastal dunes, marshes and swamps, coastal scrub. Mesic sites in dunes or along streams or coastal salt marshes. 0-155 meters. Blooms June through October.	**Present.** This species has been observed in the Project.
Calandrinia breweri Brewer's calandrinia	- / - / 4.2	Chaparral, coastal scrub. Sandy or loamy soils. Disturbed sites, burns. 10-1200 meters. Blooms March through June.	**Not expected.** Marginally suitable habitat is present in the Project.
California macrophylla round-leaved filaree	- / - / 1B.2	Cismontane woodland, valley and foothill grassland. Clay soils. 30-1345 meters. Blooms March through May.	**None.** Suitable habitat is not present in the Project.

Name	Listing status* (Federal/ State/CNPS)	Habitat and Flowering Period	Potential to Occur in the Project
Calochortus umbellatus Oakland star-tulip	- / - / 4.2	Chaparral, lower montane coniferous forest, broadleafed upland forest, valley and foothill grassland, cismontane woodland. Often on serpentine. 100-700 meters. Blooms March through May.	**None.** Suitable habitat is not present in the Project
Castilleja ambigua var. *ambigua* johnny-nip	- / - / 4.2	Coastal bluff scrub, coastal scrub, coastal prairie, marshes and swamps, valley and foothill grassland, vernal pool margins. 0-435 meters. Blooms March through August.	**Not expected.** Marginally suitable habitat is present in the Project.
Cirsium andrewsii Franciscan thistle	- / - / 1B.2	Coastal bluff scrub, broadleafed upland forest, coastal scrub, coastal prairie. Sometimes serpentine seeps. 0-295 meters. Blooms March through July.	**Not expected.** Marginally suitable habitat is present in the Project.
Cirsium fontinale var. *fontinale* Crystal Springs fountain thistle	FE / SE / 1B.1	Valley and foothill grassland, chaparral, cismontane woodland, meadows and seeps. Serpentine seeps and grassland. 45-185 meters. Blooms May through October.	**None.** Suitable habitat is not present in the Project
Collinsia multicolor San Francisco collinsia	- / - / 1B.2	Closed-cone coniferous forest, coastal scrub. On decomposed shale (mudstone) mixed with humus; sometimes on serpentine. 30-275 meters. Blooms March through May.	**Not expected. I**n San Mateo county only known from bay-side of the county, not the coast-side.
Cypripedium fasciculatum clustered lady's-slipper	- / - / 4.2	North coast coniferous forest, lower montane coniferous forest. In serpentine seeps and on moist streambanks. 100-2435 meters. Blooms March through August.	**None.** Suitable habitat is not present in the Project
Cypripedium montanum mountain lady's-slipper	- / - / 4.2	Lower montane coniferous forest, broadleafed upland forest, cismontane woodland, north coast coniferous forest. On dry, undisturbed slopes. 185-2225 meters. Blooms March through August.	**None.** Suitable habitat is not present in the Project
Dirca occidentalis western leatherwood	- / - / 1B.2	Broadleafed upland forest, chaparral, closed-cone coniferous forest, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. On brushy slopes, mesic sites; mostly in mixed evergreen & foothill woodland communities. 25-425 meters. Blooms January through March.	**None.** The Project is not within the elevation range for this species.
Elymus californicus California bottle-brush grass	- / - / 4.3	North coast coniferous forest, cismontane woodland, broadleafed upland forest, riparian woodland. In sandy humus soils. 15-470 meters. Blooms May through August.	**Not expected.** Marginally suitable habitat is present in the Project.
Eriophyllum latilobum San Mateo woolly sunflower	FE / SE / 1B.1	Cismontane woodland, coastal scrub, lower montane coniferous forest. Often on roadcuts; found on and off of serpentine. 30-610 meters. Blooms May through June.	**None.** The Project is not within the elevation range for this species.

Name	Listing status* (Federal/ State/CNPS)	Habitat and Flowering Period	Potential to Occur in the Project
Erysimum ammophilum sand-loving wallflower	- / - / 1B.2	Chaparral (maritime), coastal dunes, coastal scrub. Sandy openings. 5-130 meters. Blooms February through June.	**Not expected.** Marginally **s**uitable habitat is present in the Project.
Erysimum franciscanum San Francisco wallflower	- / - / 4.2	Coastal dunes, coastal scrub, chaparral, valley and foothill grassland. Often occurs on serpentine soils or outcrops; sometimes granite. Occasionally on grassy, rocky slopes. 0-550 meters. Blooms March through June.	**Not expected.** Marginally suitable habitat is present in the Project.
Fissidens pauperculus minute pocket moss	- / - / 1B.2	North coast coniferous forest. Moss growing on damp soil along the coast. In dry streambeds and on stream banks. 10-1024 meters.	**None.** Suitable habitat is not present in the Project.
Fritillaria agrestis stinkbells	- / - / 4.2	Cismontane woodland, chaparral, valley and foothill grassland, pinyon and juniper woodland. Sometimes on serpentine; mostly found in nonnative grassland or in grassy openings in clay soil. 10-1555 meters. Blooms March through June.	**None.** Suitable habitat is not present in the Project.
Fritillaria liliacea fragrant fritillary	- / - / 1B.2	Coastal scrub, valley and foothill grassland, coastal prairie, cismontane woodland. Often on serpentine; various soils reported though usually on clay, in grassland. 3-400 meters. Blooms February through April.	**Not expected.** Marginally suitable habitat is present in the Project.
Grindelia hirsutula var. *maritima* San Francisco gumplant	- / - / 3.2	Coastal scrub, coastal bluff scrub, valley and foothill grassland. Sandy or serpentine slopes, sea bluffs. 15-305 meters. Blooms June through September.	**Not expected.** Marginally suitable habitat is present in the Project.
Hesperocyparis abramsiana var. *butanoensis* Butano Ridge cypress	FT / SE / 1B.2	Closed-cone coniferous forest, lower montane coniferous forest, chaparral. Sandstone. 400-490 meters.	**None.** Suitable habitat is not present in the Project.
Hesperolinon congestum Marin western flax	FT / ST / 1B.1	Chaparral, valley and foothill grassland. In serpentine barrens and in serpentine grassland and chaparral. 60-370 meters. Blooms April through July.	**None.** Suitable habitat is not present in the Project.
Horkelia cuneata var. *sericea* Kellogg's horkelia	- / - / 1B.1	Closed-cone coniferous forest, coastal scrub, coastal dunes, chaparral. Old dunes, coastal sandhills; openings. Sandy or gravelly soils. 5-430 meters. Blooms April through September.	**None.** Suitable habitat is not present in the Project.
Hosackia gracilis harlequin lotus	- / - / 4.2	Broadleafed upland forest, coast bluff scrub, coast prairie, cismontane woodland, coastal scrub, closed-cone coniferous forest, meadows and seeps, marshes and swamps, north coast coniferous forest, valley and foothill grassland. Wetlands and roadsides. 0-700 meters. Blooms March through July.	**Not expected.** Marginally suitable habitat is present in the Project.
Iris longipetala coast iris	- / - / 4.2	Coastal prairie, lower montane coniferous forest, meadows and seeps. Mesic sites, heavy soils. 0-600 meters. Blooms March through May.	**None.** Suitable habitat is not present in the Project.

Name	Listing status* (Federal/ State/CNPS)	Habitat and Flowering Period	Potential to Occur in the Project
Lasthenia californica ssp. *macrantha* perennial goldfields	- / - / 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub. 5-185 meters. Blooms January through November.	**Not expected.** Present across State Route 1, marginally suitable habitat is present in the Project.
Leptosiphon ambiguus serpentine leptosiphon	- / - / 4.2	Cismontane woodland, coastal scrub, valley and foothill grassland (margin with chaparral). Grassy areas on serpentine soil. 120-1130 meters. Blooms March through June.	**None.** Suitable habitat is not present in the Project.
Leptosiphon croceus coast yellow leptosiphon	- / Candidate SE / 1B.1	Coastal bluff scrub, coastal prairie. 10-150 meters. Blooms March through June.	**Not expected.** Marginally suitable habitat is present in the Project.
Leptosiphon rosaceus rose leptosiphon	- / - / 1B.1	Coastal bluff scrub. 10-140 meters. Blooms April through July.	**Not Expected.** The nearby occurrence is considered possibly extirpated and is not anticipated in the project footprint
Lessingia arachnoidea Crystal Springs lessingia	- / - / 1B.2	Coastal sage scrub, valley and foothill grassland, cismontane woodland. Grassy slopes on serpentine; sometimes on roadsides. 90-200 meters. Blooms July through October.	**None.** Suitable habitat is not present in the Project.
Lessingia hololeuca woolly-headed lessingia	- / - / 3	Coastal scrub, lower montane coniferous forest, valley and foothill grassland, broadleafed upland forest. Clay, serpentine; roadsides, fields. 15-305 meters. Blooms June through October.	**None.** Suitable habitat is not present in the Project.
*Limnanthes douglasi*i ssp. *sulphurea* Point Reyes meadowfoam	- / SE / 1B.2	Marshes and swamps (freshwater), vernal pools, coastal prairie, meadows and seeps. Vernally wet depressions in open rolling, coastal prairies and meadows; typically in dark clay soil. 10-125 meters. Blooms March through May.	**None.** Suitable habitat is not present in the Project.
Lupinus arboreus var. *eximius* San Mateo tree lupine	- / - / 3.2	Coastal scrub, chaparral. Sandy soils, rocky hills, difficult to ID. 90-550 meters. Blooms April through July.	**None.** The Project is not within the elevation range for this species.
Malacothamnus arcuatus arcuate bush-mallow	- / - / 1B.2	Chaparral, cismontane woodland. Gravelly alluvium. 1-735 meters. Blooms April through September.	**None.** Suitable habitat is not present in the Project.

Name	Listing status* (Federal/ State/CNPS)	Habitat and Flowering Period	Potential to Occur in the Project
Malacothamnus davidsonii Davidson's bush-mallow	- / - / 1B.2	Coastal scrub, riparian woodland, chaparral, cismontane woodland. Sandy washes. 150-1525 meters. Blooms June through January.	**None.** The Project is not within the elevation range for this species.
Microseris paludosa marsh microseris	- / - / 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. 3-610 meters. Blooms April through June.	**Not expected.** Historically observed in the vicinity of the Project, but is thought to be extirpated in this location (CDFW 2017).
Mielichhoferia elongata elongate copper moss	- / - / 4.3	Cismontane woodland. Moss growing on very acidic, metamorphic rock or substrate; usually in higher portions in fens. Often on substrates naturally enriched with heavy metals (e.g. copper). 500-1300 meters.	**None.** Suitable habitat is not present in the Project.
Monolopia gracilens woodland woollythreads	- / - / 1B.2	Chaparral, valley and foothill grassland, cismontane woodland, broadleafed upland forest, North Coast coniferous forest. Grassy sites, in openings; sandy to rocky soils. Often seen on serpentine after burns, but may have only weak affinity to serpentine. 120-975 meters. Blooms March through July.	**None.** Suitable habitat is not present in the Project.
Pedicularis dudleyi Dudley's lousewort	- / Rare / 1B.2	Chaparral, cismontane woodland, North Coast coniferous forest, valley and foothill grassland. Deep shady woods of older coast redwood forests; also in maritime chaparral. 60-330 meters. Blooms April through June.	**None.** The Project is not within the elevation range for this species.
Pentachaeta bellidiflora white-rayed pentachaeta	FE / SE / 1B.1	Valley and foothill grassland, cismontane woodland. Open dry rocky slopes and grassy areas, often on soils derived from serpentine bedrock. 35-610 meters. Blooms March through May.	**None.** Suitable habitat is not present in the Project.
Pinus radiata Monterey pine	- / - / 1B.1	Closed-cone coniferous forest, cismontane woodland. Three primary stands are native to California. Dry bluffs and slopes. 60-125 meters.	**None.** Suitable habitat is not present in the Project.
Plagiobothrys chorisianus var. *chorisianus* Choris' popcornflower	- / - / 1B.2	Chaparral, coastal scrub, coastal prairie. Mesic sites. 2-705 meters. Blooms March through June.	**Possible.** Recent occurrences across State Route 1.Potentially suitable habitat in coyotebrush scrub.
Plagiobothrys diffusus San Francisco popcornflower	- / SE / 1B.1	Valley and foothill grassland, coastal prairie. Historically from grassy slopes with marine influence. 45-360 meters. Blooms March through June.	**None.** Suitable habitat is not present in the Project.

Name	Listing status* (Federal/ State/CNPS)	Habitat and Flowering Period	Potential to Occur in the Project
Polemonium carneum Oregon polemonium	- / - / 2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. 0-1830 meters. Blooms April through September.	**Not expected.** Marginally suitable habitat is present in the Project, and known occurrences in San Mateo County are located at higher elevations than the proposed project.
Ranunculus lobbii Lobb's aquatic buttercup	- / - / 4.2	Cismontane woodland, valley and foothill grassland, vernal pools, north coast coniferous forest. Mesic sites. 15-470 meters. Blooms February through May.	**None.** Suitable habitat is not present in the Project.
Sanicula hoffmannii Hoffmann's sanicle	- / - / 4.3	Broadleafed upland forest, coastal scrub, coastal bluff scrub, chaparral, cismontane woodland, lower montane coniferous forest. Cool slopes in deep soil, often in moist shaded serpentine soils, or in clay soils. 30-300 meters. Blooms March through May.	**None.** Suitable habitat is not present in the Project.
Senecio aphanactis chaparral ragwort	- / - / 2B.2	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20-855 meters. Blooms Jan through April.	**None.** Suitable habitat is not present in the Project.
Sidalcea hickmanii ssp. *viridis* Marin checkerbloom	- / - / 1B.1	Chaparral. Serpentine or volcanic soils; sometimes appears after burns. 1-425 meters. Blooms May through June.	**None.** Suitable habitat is not present in the Project.
Silene scouleri ssp. *scouleri* Scouler's catchfly	- / - / 2B.2	Coastal bluff scrub, Coastal prairie, Valley and foothill grassland. 0-600 meters. Blooms June through August.	**Not expected.** Marginally suitable habitat is present in the Project.
Silene verecunda ssp. *verecunda* San Francisco campion	- / - / 1B.2	Coastal scrub, valley and foothill grassland, coastal bluff scrub, chaparral, coastal prairie. Often on mudstone or shale; one site on serpentine. 30-645 meters. Blooms March through June.	**Not expected.** Marginally suitable habitat is present in the Project.
Stebbinsoseris decipiens Santa Cruz microseris	- / - / 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland. Open areas in loose or disturbed soil, usually derived from sandstone, shale or serpentine, on seaward slopes. 90-750 meters. Blooms April through May.	**None.** The Project is not within the elevation range for this species.
Stuckenia filiformis ssp. *alpina* slender-leaved pondweed	- / - / 2B.2	Marshes and swamps. Shallow, clear water of lakes and drainage channels. 300-2150 meters. Blooms May through July.	**None.** The Project is not within the elevation range for this species.

Name	Listing status* (Federal/ State/CNPS)	Habitat and Flowering Period	Potential to Occur in the Project
Usnea longissima Methuselah's beard lichen	- / - / 4.2	North coast coniferous forest, broadleafed upland forest. Grows in the "redwood zone" on tree branches of a variety of trees, including big leaf maple, oaks, ash, Douglas-fir, and bay. 45-1465 m in California.	**None.** Suitable habitat is not present in the Project.

*** List of Abbreviations for Federal and State Species Status follow below:**
FE = Federal endangered
FT = Federal threatened
SE = State endangered
ST = State threatened
SR = State rare

Table C-2. Special Status Animal Species

Scientific name	Listing status* (Federal/ State)	Habitat	Potential to Occur in the Project
Invertebrates			
Callophrys mossii bayensis San Bruno elfin butterfly	FE/-	Coastal, mountainous areas with grassy ground cover, mainly in the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on steep, north-facing slopes within the fog belt. Larval host plant is *Sedum spathulifolium*.	**None.** Suitable habitat is not present in the Project.
Euphydryas editha bayensis Bay checkerspot butterfly	FT/-	Restricted to native grasslands on outcrops of serpentine soil in the vicinity of San Francisco Bay. *Plantago erecta* is the primary host plant; *Orthocarpus densiflorus* & *O. purpurscens* are the secondary host plants.	**None.** Suitable habitat is not present in the Project.
Speyeria zerene myrtleae Myrtle's silverspot butterfly	FE/-	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County. Larval foodplant thought to be *Viola adunca*.	**None.** Extirpated from San Mateo County.
Tryonia imitator mimic tryonia (=California brackishwater snail)	-/- (San Mateo County Local Coastal Program rare species)	Inhabits coastal lagoons, estuaries and salt marshes, from Sonoma County south to San Diego County. Found only in permanently submerged areas in a variety of sediment types; able to withstand a wide range of salinities.	**Present.** This species has been observed in the Project.
Amphibians and Reptiles			
Ambystoma californiense California tiger salamander	FT/ST	Central Valley DPS federally listed as threatened. Santa Barbara and Sonoma counties DPS federally listed as endangered. Need underground refuges, especially ground squirrel burrows, and vernal pools or other seasonal water sources for breeding.	**None.** Suitable habitat is not present in the Project.
Aneides niger Santa Cruz black salamander	-/SSC	Mixed deciduous and coniferous woodlands and coastal grasslands in San Mateo, Santa Cruz, and Santa Clara counties. Adults found under rocks, talus, and damp woody debris.	**None.** Suitable habitat is not present in the Project.

Scientific name	Listing status* (Federal/ State)	Habitat	Potential to Occur in the Project
Chelonia mydas green sea turtle	FT/-	Marine. Completely herbivorous; needs adequate supply of seagrasses and algae.	**None.** Suitable habitat is not present in the Project.
Dicamptodon ensatus California giant salamander	-/SSC	Known from wet coastal forests near streams and seeps from Mendocino County south to Monterey County, and east to Napa County. Aquatic larvae found in cold, clear streams, occasionally in lakes and ponds. Adults known from wet forests under rocks and logs near streams and lakes.	**Not expected.** Marginally suitable habitat is present in the Project.
Emys marmorata western pond turtle	-/SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches, usually with aquatic vegetation, below 6000 ft elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	**Present.** This species has been observed in the Project.
Rana boylii foothill yellow-legged frog	-/Candidate ST	Partly-shaded, shallow streams and riffles with a rocky substrate in a variety of habitats. Needs at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis.	**None.** Suitable habitat is not present in the Project.
Thamnophis sirtalis tetrataenia San Francisco gartersnake	FE/SE, FP	Vicinity of freshwater marshes, ponds and slow-moving streams in San Mateo County and extreme northern Santa Cruz County. Prefers dense cover and water depths of at least one foot. Upland areas near water are also very important.	**Present.** This species has been observed in the Project.
Fish			
Eucyclogobius newberryi tidewater goby	FE/SSC	Brackish water habitats along the California coast from Agua Hedionda Lagoon, San Diego County to the mouth of the Smith River. Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water and high oxygen levels.	**Present.** This species has been observed in the Project.
Hypomesus transpacificus Delta smelt	FT/SE	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait & San Pablo Bay. Seldom found at salinities > 10 ppt. Most often at salinities < 2ppt.	**None.** The Project is not within range of this species.
Oncorhynchus kisutch pop. 4 coho salmon - central California coast ESU	FE/SE	Federal listing = pops between Punta Gorda & San Lorenzo River. State listing = pops south of Punta Gorda. Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water & sufficient dissolved oxygen.	**Not expected.** The population of the species in this watershed is considered functionally extirpated (Williams et al.2016).

Scientific name	Listing status* (Federal/ State)	Habitat	Potential to Occur in the Project
Oncorhynchus mykiss irideus steelhead - central California coast DPS	FT/-	From Russian River, south to Soquel Creek and to, but not including, Pajaro River. Also San Francisco and San Pablo Bay basins.	**Present.** This species has been observed in the Project.
Spirinchus thaleichthys longfin smelt	Candidate/ST, SSC	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column. Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	**None.** Not within the extant range of this species.
Birds			
Brachyramphus marmoratus marbled murrelet	FT/SE	Feeds near-shore; nests inland along coast from Eureka to Oregon border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests, up to six miles inland, often in Douglas-fir.	**None.** Suitable habitat is not present in the Project.
Charadrius alexandrinus nivosus western snowy plover	FT/SSC	Sandy beaches, salt pond levees & shores of large alkali lakes. Needs sandy, gravelly or friable soils for nesting.	**Present.** No suitable open, sandy habitat is present in Butano Marsh, and therefore the species is not expected to even forage (let alone nest) in the Marsh portion of the Project area. This species is known to occur on Pescadero Beach.
Circus cyaneus northern harrier	-/SSC	Coastal salt & freshwater marsh. Nest and forage in grasslands, from salt grass in desert sink to mountain cienagas. Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	**Present.** This species is known to nest within Butano Marsh.
Cypseloides niger black swift	-/SSC	Coastal belt of Santa Cruz and Monterey counties; central & southern Sierra Nevada; San Bernardino & San Jacinto mountains. Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf; forages widely.	**Not expected.** Marginally suitable habitat is present in the Project.
Elanus leucurus white-tailed kite	-/FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	**Present.** This species observed adjacent to the Project and may nest in riparian vegetation.

Scientific name	Listing status* (Federal/ State)	Habitat	Potential to Occur in the Project
Geothlypis trichas sinuosa saltmarsh common yellowthroat	-/SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes. Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	**Present.** This species is known to nest within Butano Marsh.
Passerculus sandwichensis alaudinus Bryant's savannah sparrow	-/SSC	This subspecies occurs primarily in coastal and bayshore areas, from Humboldt Bay to Morro Bay, and is found year-round in low-elevation, tidally influenced habitat, specifically pickleweed-dominated salt marshes, and in grasslands and ruderal areas. Bryant's savannah sparrows prefer to nest along levee tops with short vegetative growth and levee banks with high pickleweed, but may also nest within ruderal areas adjacent to tidal marshes and moist grasslands (Fitton 2008).	**Present.** This species is known to nest within Butano Marsh.
Phoebastria albatrus short-tailed albatross	FE/-	This species ranges across the North Pacific Ocean, and breeds on islands off the coast of Japan and Taiwan.	**None.** Although this species is occasionally sighted off the coast of California, it is only known to breed on islands off the coast of Japan and Taiwan. It would not occur within the Project.
Riparia riparia bank swallow	-/ST	Colonial nester; nests primarily in riparian and other lowland habitats west of the desert. Requires vertical banks/cliffs with fine-textured/sandy soils near streams, rivers, lakes, ocean to dig nesting hole.	**None.** Suitable habitat is not present in the Project.
Sternula antillarum browni California least tern	FE/SE	Nests along the coast from San Francisco Bay south to northern Baja California. Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, land fills, or paved areas.	**Not expected.** This species is not known to nest in coastal San Mateo county.
Mammals			
Antrozous pallidus pallid bat	-/SSC	Deserts, grasslands, shrublands, woodlands and forests. Most common in open, dry habitats with rocky areas for roosting. Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Not expected.** Marginally suitable habitat is present in the Project.
Corynorhinus townsendii Townsend's big-eared bat	-/SSC	Throughout California in a wide variety of habitats. Most common in mesic sites. Roosts in the open, hanging from walls and ceilings. Roosting sites limiting. Extremely sensitive to human disturbance.	**None.** Suitable habitat is not present in the Project.

Scientific name	Listing status* (Federal/ State)	Habitat	Potential to Occur in the Project
Enhydra lutris nereis southern sea otter	FT/-	Nearshore marine environments from about Ano Nuevo, San Mateo Co. to Point Sal, Santa Barbara Co. Needs canopies of giant kelp & bull kelp for rafting & feeding. Prefers rocky substrates with abundant invertebrates.	**None.** Suitable habitat is not present in the Project.
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	-/SSC	Forest habitats of moderate canopy & moderate to dense understory. May prefer chaparral & redwood habitats. Constructs nests of shredded grass, leaves & other material. May be limited by availability of nest-building materials.	**Present.** This species has been observed in the Project.

*** List of Abbreviations for Federal and State Species Status follow below:**
FE = Federal endangered
FT = Federal threatened
SE = State endangered
ST = State threatened
SSC = Species of special concern
FP = State fully protected

References

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Selected Elements by Scientific Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (Half Moon Bay (3712244) OR Woodside (3712243) OR San Gregorio (3712234) OR La Honda (3712233) OR Pigeon Point (3712224) OR Franklin Point (3712223))

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Acanthomintha duttonii San Mateo thorn-mint	PDLAM01040	Endangered	Endangered	G1	S1	1B.1
Agrostis blasdalei Blasdale's bent grass	PMPOA04060	None	None	G2	S2	1B.2
Allium peninsulare var. franciscanum Franciscan onion	PMLIL021R1	None	None	G5T1	S1	1B.2
Ambystoma californiense California tiger salamander	AAAAA01180	Threatened	Threatened	G2G3	S2S3	WL
Aneides niger Santa Cruz black salamander	AAAAD01070	None	None	G3	S3	SSC
Antrozous pallidus pallid bat	AMACC10010	None	None	G5	S3	SSC
Arctostaphylos andersonii Anderson's manzanita	PDERI04030	None	None	G2	S2	1B.2
Arctostaphylos regismontana Kings Mountain manzanita	PDERI041C0	None	None	G2	S2	1B.2
Ardea herodias great blue heron	ABNGA04010	None	None	G5	S4	
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	PDFAB0F7B2	None	None	G2T2	S2	1B.2
Bombus caliginosus obscure bumble bee	IIHYM24380	None	None	G4?	S1S2	
Bombus occidentalis western bumble bee	IIHYM24250	None	None	G2G3	S1	
Brachyramphus marmoratus marbled murrelet	ABNNN06010	Threatened	Endangered	G3G4	S1	
Calicina minor Edgewood blind harvestman	ILARA13020	None	None	G1	S1	
California macrophylla round-leaved filaree	PDGER01070	None	None	G4	S4	1B.2
Charadrius alexandrinus nivosus western snowy plover	ABNNB03031	Threatened	None	G3T3	S2S3	SSC
Cirsium andrewsii Franciscan thistle	PDAST2E050	None	None	G3	S3	1B.2
Cirsium fontinale var. fontinale Crystal Springs fountain thistle	PDAST2E161	Endangered	Endangered	G2T1	S1	1B.1
Collinsia multicolor San Francisco collinsia	PDSCR0H0B0	None	None	G2	S2	1B.2

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Corynorhinus townsendii Townsend's big-eared bat	AMACC08010	None	None	G3G4	S2	SSC
Cypseloides niger black swift	ABNUA01010	None	None	G4	S2	SSC
Danaus plexippus pop. 1 monarch - California overwintering population	IILEPP2012	None	None	G4T2T3	S2S3	
Dicamptodon ensatus California giant salamander	AAAAH01020	None	None	G3	S2S3	SSC
Dipodomys venustus venustus Santa Cruz kangaroo rat	AMAFD03042	None	None	G4T1	S1	
Dirca occidentalis western leatherwood	PDTHY03010	None	None	G2	S2	1B.2
Emys marmorata western pond turtle	ARAAD02030	None	None	G3G4	S3	SSC
Eriophyllum latilobum San Mateo woolly sunflower	PDAST3N060	Endangered	Endangered	G1	S1	1B.1
Erysimum ammophilum sand-loving wallflower	PDBRA16010	None	None	G2	S2	1B.2
Eucyclogobius newberryi tidewater goby	AFCQN04010	Endangered	None	G3	S3	SSC
Euphydryas editha bayensis Bay checkerspot butterfly	IILEPK4055	Threatened	None	G5T1	S1	
Fissidens pauperculus minute pocket moss	NBMUS2W0U0	None	None	G3?	S2	1B.2
Fritillaria liliacea fragrant fritillary	PMLIL0V0C0	None	None	G2	S2	1B.2
Geothlypis trichas sinuosa saltmarsh common yellowthroat	ABPBX1201A	None	None	G5T3	S3	SSC
Hesperocyparis abramsiana var. butanoensis Butano Ridge cypress	PGCUP04082	Threatened	Endangered	G1T1	S1	1B.2
Hesperolinon congestum Marin western flax	PDLIN01060	Threatened	Threatened	G1	S1	1B.1
Horkelia cuneata var. sericea Kellogg's horkelia	PDROS0W043	None	None	G4T1?	S1?	1B.1
Hydrochara rickseckeri Ricksecker's water scavenger beetle	IICOL5V010	None	None	G2?	S2?	
Lasiurus cinereus hoary bat	AMACC05030	None	None	G5	S4	
Lasthenia californica ssp. macrantha perennial goldfields	PDAST5L0C5	None	None	G3T2	S2	1B.2
Leptosiphon rosaceus rose leptosiphon	PDPLM09180	None	None	G1	S1	1B.1

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Lessingia arachnoidea	PDAST5S0C0	None	None	G2	S2	1B.2
Crystal Springs lessingia						
Limnanthes douglasii ssp. sulphurea	PDLIM02038	None	Endangered	G4T1	S1	1B.2
Point Reyes meadowfoam						
Malacothamnus arcuatus	PDMAL0Q0E0	None	None	G2Q	S2	1B.2
arcuate bush-mallow						
Margaritifera falcata	IMBIV27020	None	None	G4G5	S1S2	
western pearlshell						
Microcina edgewoodensis	ILARA47010	None	None	G1	S1	
Edgewood Park micro-blind harvestman						
Microseris paludosa	PDAST6E0D0	None	None	G2	S2	1B.2
marsh microseris						
Monolopia gracilens	PDAST6G010	None	None	G3	S3	1B.2
woodland woollythreads						
Monterey Pine Forest	CTT83130CA	None	None	G1	S1.1	
Monterey Pine Forest						
N. Central Coast Calif. Roach/Stickleback/Steelhead Stream	CARA2633CA	None	None	GNR	SNR	
N. Central Coast Calif. Roach/Stickleback/Steelhead Stream						
Neotoma fuscipes annectens	AMAFF08082	None	None	G5T2T3	S2S3	SSC
San Francisco dusky-footed woodrat						
North Central Coast Short-Run Coho Stream	CARA2632CA	None	None	GNR	SNR	
North Central Coast Short-Run Coho Stream						
North Central Coast Steelhead/Sculpin Stream	CARA2637CA	None	None	GNR	SNR	
North Central Coast Steelhead/Sculpin Stream						
Northern Coastal Salt Marsh	CTT52110CA	None	None	G3	S3.2	
Northern Coastal Salt Marsh						
Northern Interior Cypress Forest	CTT83220CA	None	None	G2	S2.2	
Northern Interior Cypress Forest						
Oncorhynchus kisutch pop. 4	AFCHA02034	Endangered	Endangered	G4	S2?	
coho salmon - central California coast ESU						
Oncorhynchus mykiss irideus pop. 8	AFCHA0209G	Threatened	None	G5T2T3Q	S2S3	
steelhead - central California coast DPS						
Pentachaeta bellidiflora	PDAST6X030	Endangered	Endangered	G1	S1	1B.1
white-rayed pentachaeta						
Pinus radiata	PGPIN040V0	None	None	G1	S1	1B.1
Monterey pine						
Plagiobothrys chorisianus var. chorisianus	PDBOR0V061	None	None	G3T2Q	S2	1B.2
Choris' popcornflower						
Plagiobothrys diffusus	PDBOR0V080	None	Endangered	G1Q	S1	1B.1
San Francisco popcornflower						
Rana boylii	AAABH01050	None	Candidate Threatened	G3	S3	SSC
foothill yellow-legged frog						

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Rana draytonii California red-legged frog	AAABH01022	Threatened	None	G2G3	S2S3	SSC
Riparia riparia bank swallow	ABPAU08010	None	Threatened	G5	S2	
Sacramento-San Joaquin Coastal Lagoon Sacramento-San Joaquin Coastal Lagoon	CALA1360CA	None	None	GNR	SNR	
Senecio aphanactis chaparral ragwort	PDAST8H060	None	None	G3	S2	2B.2
Serpentine Bunchgrass Serpentine Bunchgrass	CTT42130CA	None	None	G2	S2.2	
Silene verecunda ssp. verecunda San Francisco campion	PDCAR0U213	None	None	G5T1	S1	1B.2
Speyeria zerene myrtleae Myrtle's silverspot butterfly	IILEPJ608C	Endangered	None	G5T1	S1	
Spirinchus thaleichthys longfin smelt	AFCHB03010	Candidate	Threatened	G5	S1	SSC
Stebbinsoseris decipiens Santa Cruz microseris	PDAST6E050	None	None	G2	S2	1B.2
Stuckenia filiformis ssp. alpina slender-leaved pondweed	PMPOT03091	None	None	G5T5	S3	2B.2
Thamnophis sirtalis tetrataenia San Francisco gartersnake	ARADB3613B	Endangered	Endangered	G5T2Q	S2	FP
Tryonia imitator mimic tryonia (=California brackishwater snail)	IMGASJ7040	None	None	G2	S2	
Usnea longissima Methuselah's beard lichen	NLLEC5P420	None	None	G4	S4	4.2
Valley Needlegrass Grassland Valley Needlegrass Grassland	CTT42110CA	None	None	G3	S3.1	

Record Count: 75

CNPS California Native Plant Society

Plant List

Inventory of Rare and Endangered Plants

58 matches found. *Click on scientific name for details*

Search Criteria

Found in Quads 3712244, 3712243, 3712234, 3712233 3712224 and 3712223;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	Apr-Jun	1B.1	S1	G1
Agrostis blasdalei	Blasdale's bent grass	Poaceae	perennial rhizomatous herb	May-Jul	1B.2	S2	G2
Allium peninsulare var. franciscanum	Franciscan onion	Alliaceae	perennial bulbiferous herb	(Apr)May-Jun	1B.2	S1	G5T1
Anomobryum julaceum	slender silver moss	Bryaceae	moss		4.2	S2	G5?
Arctostaphylos andersonii	Anderson's manzanita	Ericaceae	perennial evergreen shrub	Nov-May	1B.2	S2	G2
Arctostaphylos regismontana	Kings Mountain manzanita	Ericaceae	perennial evergreen shrub	Dec-Apr	1B.2	S2	G2
Astragalus nuttallii var. nuttallii	ocean bluff milk-vetch	Fabaceae	perennial herb	Jan-Nov	4.2	S4	G4T4
Astragalus pycnostachyus var. pycnostachyus	coastal marsh milk-vetch	Fabaceae	perennial herb	(Apr)Jun-Oct	1B.2	S2	G2T2
Calandrinia breweri	Brewer's calandrinia	Montiaceae	annual herb	(Jan)Mar-Jun	4.2	S4	G4
Calochortus umbellatus	Oakland star-tulip	Liliaceae	perennial bulbiferous herb	Mar-May	4.2	S4	G3?
Castilleja ambigua var. ambigua	johnny-nip	Orobanchaceae	annual herb (hemiparasitic)	Mar-Aug	4.2	S4	G4T5
Cirsium andrewsii	Franciscan thistle	Asteraceae	perennial herb	Mar-Jul	1B.2	S3	G3
Cirsium fontinale var. fontinale	Crystal Springs fountain thistle	Asteraceae	perennial herb	(Apr)May-Oct	1B.1	S1	G2T1
Collinsia multicolor	San Francisco collinsia	Plantaginaceae	annual herb	(Feb)Mar-May	1B.2	S2	G2
Cypripedium fasciculatum	clustered lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Cypripedium montanum	mountain lady's-slipper	Orchidaceae	perennial rhizomatous herb	Mar-Aug	4.2	S4	G4
Dirca occidentalis	western leatherwood	Thymelaeaceae	perennial deciduous shrub	Jan-Mar(Apr)	1B.2	S2	G2
Elymus californicus	California bottle-brush grass	Poaceae	perennial herb	May-Aug(Nov)	4.3	S4	G4
Eriophyllum latilobum	San Mateo woolly	Asteraceae	perennial herb	May-Jun	1B.1	S1	G1

	sunflower						
Erysimum ammophilum	sand-loving wallflower	Brassicaceae	perennial herb	Feb-Jun	1B.2	S2	G2
Erysimum franciscanum	San Francisco wallflower	Brassicaceae	perennial herb	Mar-Jun	4.2	S3	G3
Fissidens pauperculus	minute pocket moss	Fissidentaceae	moss		1B.2	S2	G3?
Fritillaria agrestis	stinkbells	Liliaceae	perennial bulbiferous herb	Mar-Jun	4.2	S3	G3
Fritillaria liliacea	fragrant fritillary	Liliaceae	perennial bulbiferous herb	Feb-Apr	1B.2	S2	G2
Grindelia hirsutula var. maritima	San Francisco gumplant	Asteraceae	perennial herb	Jun-Sep	3.2	S1	G5T1Q
Hesperocyparis abramsiana var. butanoensis	Butano Ridge cypress	Cupressaceae	perennial evergreen tree	Oct	1B.2	S1	G1T1
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	1B.1	S1	G1
Horkelia cuneata var. sericea	Kellogg's horkelia	Rosaceae	perennial herb	Apr-Sep	1B.1	S1?	G4T1?
Hosackia gracilis	harlequin lotus	Fabaceae	perennial rhizomatous herb	Mar-Jul	4.2	S3	G4
Iris longipetala	coast iris	Iridaceae	perennial rhizomatous herb	Mar-May	4.2	S3	G3
Lasthenia californica ssp. macrantha	perennial goldfields	Asteraceae	perennial herb	Jan-Nov	1B.2	S2	G3T2
Leptosiphon ambiguus	serpentine leptosiphon	Polemoniaceae	annual herb	Mar-Jun	4.2	S4	G4
Leptosiphon croceus	coast yellow leptosiphon	Polemoniaceae	annual herb	Apr-Jun	1B.1	S1	G1
Leptosiphon rosaceus	rose leptosiphon	Polemoniaceae	annual herb	Apr-Jul	1B.1	S1	G1
Lessingia arachnoidea	Crystal Springs lessingia	Asteraceae	annual herb	Jul-Oct	1B.2	S2	G2
Lessingia hololeuca	woolly-headed lessingia	Asteraceae	annual herb	Jun-Oct	3	S3?	G3?
Limnanthes douglasii ssp. sulphurea	Point Reyes meadowfoam	Limnanthaceae	annual herb	Mar-May	1B.2	S1	G4T1
Lupinus arboreus var. eximius	San Mateo tree lupine	Fabaceae	perennial evergreen shrub	Apr-Jul	3.2	S2	G2Q
Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	perennial evergreen shrub	Apr-Sep	1B.2	S2	G2Q
Malacothamnus davidsonii	Davidson's bush-mallow	Malvaceae	perennial deciduous shrub	Jun-Jan	1B.2	S2	G2
Microseris paludosa	marsh microseris	Asteraceae	perennial herb	Apr-Jun(Jul)	1B.2	S2	G2
Mielichhoferia elongata	elongate copper moss	Mielichhoferiaceae	moss		4.3	S4	G5
Monolopia gracilens	woodland woolythreads	Asteraceae	annual herb	(Feb)Mar-Jul	1B.2	S3	G3
Pedicularis dudleyi	Dudley's lousewort	Orobanchaceae	perennial herb	Apr-Jun	1B.2	S2	G2
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	1B.1	S1	G1
Pinus radiata	Monterey pine	Pinaceae	perennial		1B.1	S1	G1

			evergreen tree				
Plagiobothrys chorisianus var. chorisianus	Choris' popcornflower	Boraginaceae	annual herb	Mar-Jun	1B.2	S2	G3T2Q
Plagiobothrys diffusus	San Francisco popcornflower	Boraginaceae	annual herb	Mar-Jun	1B.1	S1	G1Q
Polemonium carneum	Oregon polemonium	Polemoniaceae	perennial herb	Apr-Sep	2B.2	S2	G3G4
Ranunculus lobbii	Lobb's aquatic buttercup	Ranunculaceae	annual herb (aquatic)	Feb-May	4.2	S3	G4
Sanicula hoffmannii	Hoffmann's sanicle	Apiaceae	perennial herb	Mar-May	4.3	S3	G3
Senecio aphanactis	chaparral ragwort	Asteraceae	annual herb	Jan-Apr(May)	2B.2	S2	G3
Sidalcea hickmanii ssp. viridis	Marin checkerbloom	Malvaceae	perennial herb	May-Jun	1B.1	SH	G3TH
Silene scouleri ssp. scouleri	Scouler's catchfly	Caryophyllaceae	perennial herb	(Mar-May)Jun-Aug(Sep)	2B.2	S2S3	G5T5
Silene verecunda ssp. verecunda	San Francisco campion	Caryophyllaceae	perennial herb	(Feb)Mar-Jun(Aug)	1B.2	S1	G5T1
Stebbinsoseris decipiens	Santa Cruz microseris	Asteraceae	annual herb	Apr-May	1B.2	S2	G2
Stuckenia filiformis ssp. alpina	slender-leaved pondweed	Potamogetonaceae	perennial rhizomatous herb (aquatic)	May-Jul	2B.2	S3	G5T5
Usnea longissima	Methuselah's beard lichen	Parmeliaceae	fruticose lichen (epiphytic)		4.2	S4	G4

Suggested Citation

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IPaC **U.S. Fish & Wildlife Service**

IPaC resource list

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

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

Project information

NAME

Butano Creek Channel Reconnection and Resilience Project

LOCATION

San Mateo County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building
2800 Cottage Way, Room W-2605

Sacramento, CA 95825-1846

Endangered species

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

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

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

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

1. Log in to IPaC.
2. Go to your My Projects list.
3. Click PROJECT HOME for this project.
4. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

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

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

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

Mammals

NAME	STATUS

Southern Sea Otter Enhydra lutris nereis No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8560	Threatened Marine mammal

Birds

NAME	STATUS
California Least Tern Sterna antillarum browni No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet Brachyramphus marmoratus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/4467	Threatened
Short-tailed Albatross Phoebastria (=Diomedea) albatrus No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/433	Endangered
Western Snowy Plover Charadrius alexandrinus nivosus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle Chelonia mydas No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6199	Threatened
San Francisco Garter Snake Thamnophis sirtalis tetrataenia No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

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

Fishes

NAME	STATUS
Delta Smelt Hypomesus transpacificus There is **final** critical habitat for this species. Your location is outside the critical habitat. https://ecos.fws.gov/ecp/species/321	Threatened
Tidewater Goby Eucyclogobius newberryi There is **final** critical habitat for this species. Your location overlaps the critical habitat. https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
San Bruno Elfin Butterfly Callophrys mossii bayensis There is **proposed** critical habitat for this species. The location of the critical habitat is not available. https://ecos.fws.gov/ecp/species/3394	Endangered

Critical habitats

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

This location overlaps the critical habitat for the following species:

NAME	TYPE
California Red-legged Frog Rana draytonii https://ecos.fws.gov/ecp/species/2891#crithab	Final
Tidewater Goby Eucyclogobius newberryi https://ecos.fws.gov/ecp/species/57#crithab	Final

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

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

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

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

MIGRATORY BIRD INFORMATION IS NOT AVAILABLE AT THIS TIME

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

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures and/or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

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

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

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

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

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

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

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

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

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

What are the levels of concern for migratory birds?

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

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

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

Details about birds that are potentially affected by offshore projects

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

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

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the BGEPA should such impacts occur.

Marine mammals

Marine mammals are protected under the Marine Mammal Protection Act. Some are also protected under the Endangered Species Act[1] and the Convention on International Trade in Endangered Species of Wild Fauna and Flora[2].

The responsibilities for the protection, conservation, and management of marine mammals are shared by the U.S. Fish and Wildlife Service [responsible for otters, walruses, polar bears, manatees, and dugongs] and NOAA Fisheries[3] [responsible for seals, sea lions, whales, dolphins, and porpoises]. Marine mammals under the responsibility of NOAA Fisheries are **not** shown on this list; for additional information on those species please visit the Marine Mammals page of the NOAA Fisheries website.

The Marine Mammal Protection Act prohibits the take (to harass, hunt, capture, kill, or attempt to harass, hunt, capture or kill) of marine mammals and further coordination may be necessary for project evaluation. Please contact the U.S. Fish and Wildlife Service Field Office shown.

1. The Endangered Species Act (ESA) of 1973.
2. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) is a treaty to ensure that international trade in plants and animals does not threaten their survival in the wild.
3. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following marine mammals under the responsibility of the U.S. Fish and Wildlife Service are potentially affected by activities in this location:

NAME

Southern Sea Otter Enhydra lutris nereis
https://ecos.fws.gov/ecp/species/8560

Facilities

National Wildlife Refuge lands

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

THERE ARE NO REFUGE LANDS AT THIS LOCATION.

Fish hatcheries

THERE ARE NO FISH HATCHERIES AT THIS LOCATION.

Wetlands in the National Wetlands Inventory

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

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

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

This location overlaps the following wetlands:

ESTUARINE AND MARINE DEEPWATER

- E1UBL
- E1UBLx

ESTUARINE AND MARINE WETLAND

- E2EMP
- E2EMN
- E2USN

FRESHWATER EMERGENT WETLAND

- PEMR

FRESHWATER FORESTED/SHRUB WETLAND

- PFO/SSC
- PSSR

RIVERINE

- R3UBH
- R1UBVx
- R1UBV

A full description for each wetland code can be found at the National Wetlands Inventory website: https://ecos.fws.gov/ipac/wetlands/decoder

Data limitations

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

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

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

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

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

Appendix D

Noise Impact Calculations

Noise Calculations for Butano Creek

Daytime calculations - Butano Creek

Construction Equipment 1 (Haul Trucks)	88	dBA at 50 feet
Construction Equipment 2 (Airboat)	90	dBA at 50 feet

Note: Airboats will be used on downstream section, farther from nearest residences.

Combined Daytime Noise at 50 feet (Ltotal at 50 feet) 92.1 dBA

Ltotal=10 log(10^L1/10+10^L2/10)

Noise Threshold Limits and Distances from Project Sites to those Limits for Construction Equipment

Noise Threshold	Threshold Level - Leq (dBA)	Distance to Leq Threshold from Middle of Project Site (feet)	
Daytime Limit (7 am-10 pm)	75	359.1	Noise Ordinance has exemptions for construction at certain days/hours. Standards are divided on 7am -10 pm, 10 pm - 7 am.
Nightime Limit (10 pm-7 am)	70	638.5	Noise Element adopted State land use-noise compatibility standards. 75 dBA clearly unacceptable in low-density residential areas.

Source: Combination of Noise Ordinance and Noise Element from County of San Mateo

Note: Demolition/construction activities are exempt in noise ordinance Weekdays 7:00 am - 6 pm, 9 am - 5pm Saturdays. This exemption doesn't apply on Sundays, Thanksgiving, or Christmas. There is an additional exemption available in Section 4.88.380 of the ordinance.
Activities conducted on parks are exempt if parks are owned and operated by public entity.

Nearest Sensitive Receptors and Approximate Distances from Middle of Project Site

Sensitive Receptor	Distance (feet)	Construction Noise level dBA	Noise Level Equation: Leq = EL50-20*log(D/50)
Nearest residences to center Project Site	1800	61.0	Residence along Reservoir Rd.
Nearest school to center of Project Site	7400	48.7	Pescadero Elementary School

Vibration Source Levels for Construction Equipment (FTA 2006)

Equipment	PPV at 25 feet	VBA
Loaded Trucks	0.076	86
Bulldozer	0.089	87

Vibration Calculations with Equations for Vibration-Causing Equipment (use of Bulldozer) for Project Site

Threshold	Distance to Threshold from Middle of Project Site (feet)	Notes	
PPV=PPVref * (25/d)^1.5	20.5	Building damage threshold (sensitive buildings)	
	135.3	Human Perception (65)	65 VdB
Lvd=Lvref-30log(D/25)	42.8	Annoyance (Federal)	Federal - Annoyance 80 VdB, Damage 0.3 PPV, 0.12 for sensitive buildings

Vibration Calculations with Equations for Vibration-Causing Equipment (use of Loaded Trucks) for Project Site

Threshold	Distance to Threshold from Middle of Project Site (feet)	Notes	
PPV=PPVref * (25/d)^1.5	18.4	Building damage threshold (sensitive buildings)	
	125.3	Human Perception (65)	65 VdB

No clinics, hospitals, daycares, or assisted living facilities in the area.

Distance (feet) from Center of Project Site to Sensitive Receptors	Construction Noise level dBA	Noise Level Equation: Leq = EL50-20*log(D/50)
65	89.8	
250	78.1	
1800	61.0	Residence along Reservoir Rd
2700	57.5	Residences along Water Lane.
3500	55.2	Pescadero State Beach
200	80.1	
5800	50.8	Pescadero Community Church
7400	48.7	Pescadero Elementary School
500	72.1	
Distance from Trucks (223 ft to 75 dBA from trucks)		
40	89.9	

Lvd=Lvref-30log(D/25)	39.6	Annoyance (Federal)	Federal - Annoyance 80 VdB, Damage 0.3 PPV, 0.12 for sensitive buildings

Appendix E

Mitigation Monitoring and Reporting Program

MITIGATION MONITORING AND REPORTING PROGRAM SUMMARY TABLE

The following mitigation monitoring and reporting program (MMRP) summary table includes the best management practices (BMPs) and mitigation measures identified in the San Mateo Resource Conservation District (SMRCD) Butano Creek Channel Reconnection and Resilience Project Initial Study/Mitigated Negative Declaration (IS/MND). For each BMP and mitigation measure, this table identifies monitoring and reporting actions that shall be carried out, the party responsible for implementing these actions, and the monitoring schedule. This table also includes a column where responsible parties can check off monitoring and reporting actions as they are completed. It is the responsibility of the Contractor to ensure that actions required for all of the mitigation measures listed herein are included in the project plans and specifications. It is the responsibility of the SMRCD to review and confirm that all of the mitigation measure actions described herein are in the project plans and specifications.

Acronyms and Abbreviations

BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
CARB	California Air Resources Board
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
DR	design review
IS/MND	Initial Study/Mitigated Negative Declaration
MLD	most likely descendant
MMRP	mitigation monitoring and reporting program
NAHC	Native American Heritage Commission
NMFS	National Marine Fisheries Service
NOx	nitrogen oxides
NTU	nephelometric turbidity unit
PRC	Public Resources Code
SFGS	San Francisco garter snake
SMRCD	San Mateo Resource Conservation District
USFWS	U.S. Fish and Wildlife Service
WTP	western pond turtle
YOY	young-of-year

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	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
Best Management Practices					
BMP-1	**Non-Hazardous Materials** ▪ Berm and cover stockpiles of sand, dirt or other construction material with tarps when rain is forecast or if not actively being used within 14 days. ▪ Use (but don't overuse) reclaimed water for dust control.	1. Include non-hazardous materials BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-2	**Hazardous Materials** ▪ Label all hazardous materials and hazardous wastes (such as pesticides, paints, thinners, solvents, fuel, oil, and antifreeze) in accordance with city, county, state and federal regulations. ▪ Store hazardous materials and wastes in water tight containers, store in appropriate secondary containment, and cover them at the end of every work day or during wet weather or when rain is forecast. ▪ Follow manufacturer's application instructions for hazardous materials and be careful not to use more than necessary. Do not apply chemicals outdoors when rain is forecast within 24 hours. ▪ Arrange for appropriate disposal of all hazardous wastes.	1. Include hazardous materials BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-3	**Waste Management** ▪ Cover waste disposal containers securely with tarps at the end of every work day and during wet weather. ▪ Check waste disposal containers frequently for leaks and to make sure they are not overfilled. Never hose down a dumpster on the construction site. ▪ Clean or replace portable toilets and inspect them frequently for leaks and spills.	1. Include waste management BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	▪ Dispose of all wastes and debris properly. Recycle materials and wastes that can be recycled (such as asphalt, concrete, aggregate base materials, wood, gyp board, pipe, etc.) ▪ Dispose of liquid residues from paints, thinners, solvents, glues, and cleaning fluids as hazardous waste.				
BMP-4	**Construction Entrances and Perimeter** ▪ Establish and maintain effective perimeter controls and stabilize all construction entrances and exits to sufficiently control erosion and sediment discharges from site and tracking off site. ▪ Sweep or vacuum any street tracking immediately and secure sediment source to prevent further tracking. Never hose down streets to clean up tracking.	1. Include construction entrances and perimeter BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-5	**Maintenance and Parking** ▪ Designate an area, fitted with appropriate BMPs, for vehicle and equipment parking and storage. ▪ Perform major maintenance, repair jobs, and vehicle and equipment washing off site. ▪ If refueling or vehicle maintenance must be done on-site, work in a bermed area away from storm drains and over a drip pan big enough to collect fluids. ▪ Recycle or dispose of fluids as hazardous waste. ▪ If vehicle or equipment cleaning must be done on-site, clean with water only in a bermed area that will not allow rinse water to run into gutters, streets, storm drains, or surface waters. ▪ Do not clean vehicle or equipment on-site using soaps, solvents, degreasers, steam cleaning equipment, etc.	1. Include maintenance and parking BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-6	**Spill Prevention and Control** ▪ Keep spill cleanup materials (rags, absorbents, etc.) available at the construction site at all times.	1. Include spill prevention and control BMP in the contract specifications.	1. Confirm BMP is incorporated in the contract specifications.	1. During development of plans and specifications	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	▪ Inspect vehicles and equipment frequently for and repair leaks promptly. Use drip pans to catch leaks until repairs are made. ▪ Clean up spills or leaks immediately and dispose of cleanup materials properly. ▪ Do not hose down surfaces where fluids have spilled. Use dry cleanup methods (absorbent materials, cat litter, and/or rags). ▪ Sweep up spilled dry materials immediately. Do not try to wash them away with water, or bury them. ▪ Clean up spills on dirt areas by digging up and properly disposing of contaminated soil. ▪ Report significant spills immediately. You are required by law to report all significant releases of hazardous materials, including oil. To report a spill: 1) Dial 911 or your local emergency response number, 2) Call the Governor's Office of Emergency Services Warning Center, (800) 852-7550 (24 hours).	2. Confirm measure is implemented and that all spills are implemented in accordance with the measure. Report any significant spills to the local emergency responder and Governor's Office of Emergency Services Warning Center.	2. Ensure corrective action if measure gets improperly implemented.	2. During construction	
BMP-7	**Sediment Control** ▪ Protect storm drain inlets, gutters, ditches, and drainage courses with appropriate BMPs, such as gravel bags, fiber rolls, berms, etc. ▪ Keep excavated soil on the site where it will not collect into the street. ▪ Transfer excavated materials to dump trucks on the site, not in the street.	1. Include sediment control BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-8	**Containment** Description: Containment measures are intended to be deployed in the event of a spill of hazardous chemicals, fuels, oils, cement, and other liquids or powders to prevent pollution of water, air, or soil resources. Containment measures may include absorbent materials to soak up spills,	1. Include containment BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure	1. During development of plans and specifications 2. During construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	tools such as shovels or hoes to dig small emergency containments, tarps to cover dry spills, etc. Applications: Containment measures should be available at all construction sites and at any time that chemicals are to be used near a watercourse. BMP Removal: Handle chemicals and absorbents in accordance with instructions from fire protection staff, Environmental Health officials and/or manufacturer. Spill Prevention and Response: Fluid spills shall not be hosed down. The Contractor shall use dry cleanup methods (absorbent materials, cat litter, and/or rags) whenever possible. If water must be used, the Contractor will be required to collect the water and spilled fluids and dispose of it as hazardous waste. Spilled fluids shall not be allowed to soak into the ground or enter into any watercourse. Spilled dry materials shall be swept up immediately. Dry spills shall not be washed down or buried. Spills on dirt areas should be removed by digging up and properly disposing of contaminated soil. Significant spills shall be reported to San Mateo County Environmental Health Services Division, or other emergency office as warranted, immediately and documented using the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP) Construction Site Inspection Report form.		gets improperly implemented.		
BMP-9	**Equipment Maintenance & Fueling** Description: Equipment maintenance and fueling is frequently required at construction sites. Proper equipment maintenance and fueling procedures will ensure that no fluids are discharged into watercourses, and that any spills are promptly cleaned up, reported (if necessary) and properly disposed of. General Requirements: A separate area should be designated for equipment maintenance and fueling, away	1. Include equipment maintenance and fueling BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	from any slopes, watercourses or drainage facilities. Where equipment is expected to be stored for more than a few days, cleanup materials and tools should be kept nearby and available for immediate use (refer to BMP-8, "Containment"). Equipment should not be stored in areas that will potentially drain to watercourses or drainage facilities. If equipment must be stored in areas with the potential to generate runoff, drip pans, berms, sandbags or absorbent booms should be employed to contain any leaks or spills. Equipment should be inspected daily for leaks or damage and promptly repaired. Spill Prevention and Response: Fluid spills shall not be hosed down. The Contractor shall use dry cleanup methods (absorbent materials, cat litter, and/or rags) whenever possible. If water must be used, the Contractor will be required to collect the water and spilled fluids and dispose of it as hazardous waste. Spilled fluids shall not be allowed to soak into the ground or enter into any watercourse. Spilled dry materials shall be swept up immediately. Dry spills shall not be washed down or buried. Spills on dirt areas should be removed by digging up and properly disposing of contaminated soil. Significant spills shall be reported to San Mateo County Environmental Health Services Division, or other emergency office as warranted, immediately and documented using the SMCWPPP Construction Site Inspection Report form.				
BMP-10	**Timing of Work** In general, construction and ongoing maintenance activities that remove vegetative soil cover and/or potentially release sediment into stormwater will be conducted during the dry season (June 1 and October 15). Activities that are subject to permit requirements will be conducted during the period authorized by the permits.	1. Include timing of work BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure	1. During development of plans and specifications 2. During construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
			gets improperly implemented.		
BMP-11	**Trees** ▪ Employ the regulations of the Significant Tree Ordinance to protect significant trees (38 inches or more in circumference) which are located in urban areas zoned Design Review (DR). ▪ Employ the regulations of the Heritage Tree Ordinance to protect unique trees (including oaks and redwoods) which meet specific size and locational requirements. ▪ Comply with Local Coastal Plan (LCP) policies regarding protection of Significant Trees in scenic corridors and obtain appropriate authorizations for removal of such trees. ▪ Prohibit the removal of living trees in the Coastal Zone with a trunk circumference of more than 55 inches measured 4 ½ feet above the average surface of the ground, except as may be permitted for development under the regulations of the LCP, or permitted under the Timber Harvesting Ordinance, or for reason of danger to life or property. ▪ Allow the removal of trees which are a threat to public health, safety, and welfare.	1. Include trees BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-12	**Dust Management Controls** The SMRCD will implement the Bay Area Air Quality Management District (BAAQMD) Basic Dust Control Measures. Current measures stipulated by the BAAQMD Guidelines include the following: 1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.	1. Include dust management controls BMP in the contract specifications. 2. Confirm measure is implemented. Ensure that a publicly visible sign with the telephone number of the SMRCD	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented. Respond to any dust complaints	1. During development of plans and specifications 2. During construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	3. 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. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used. 6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. 7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator. 8. Post a publicly visible sign with the telephone number and person to contact at the SMRCD regarding dust complaints. Following the review of any dust complaints, the SMRCD project manager shall respond and take corrective action within 48 hours.	project manager is posted onsite.	received from the public.		
BMP-13	**Staging and Access** Staging, access, and parking areas will be located outside of sensitive habitats to the extent feasible.	1. Include staging and access BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure	1. During development of plans and specifications 2. During construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
			gets improperly implemented.		
BMP-14	**Area of Disturbance** Areas of disturbance will be limited to the smallest footprint necessary. The designated work area around Butano Creek will be clearly identified in the field using highly visible material, and work will not be conducted outside this area.	1. Include area of disturbance BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-15	**Equipment Maintenance and Inspection** Terrestrial equipment to be used in Butano Creek and Butano Marsh (e.g., excavators, trucks, loaders, dozers, etc.) will be retrofitted with vegetation-based oils. All other construction equipment will be maintained free of petroleum leaks. All vehicles operated within 250 ft of Butano Creek will be inspected daily for leaks and, if necessary, repaired before leaving the staging area. Inspections will be documented in a record that is available for review on request.	1. Include equipment maintenance and inspection BMP in the contract specifications. 2. Confirm measure is implemented. 3. Document all equipment inspections in a record log.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented. 3. Ensure that equipment inspections are documented appropriately.	1. During development of plans and specifications 2. During construction 3. During construction	
BMP-16	**Site Stabilization** Earthwork above the ordinary high water mark (e.g., staging areas and access routes on unpaved surfaces) will be completed as quickly as possible, and site restoration will occur immediately following use. Bare soil surfaces resulting from maintenance and/or construction activities shall be covered with suitable erosion controls (fabrics, hydroseeding, mulch, etc.):	1. Include site stabilization BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	▪ Within 12 hours of any break in work unless Project activities will resume within 7 days. ▪ No later than 3 days following the disturbance during the rainy season (approximately November through March). ▪ No later than 7 days following the disturbance during the dry season (approximately April through October)*. Every effort shall be made to immediately cover bare soil surfaces resulting from maintenance and/or construction activities prior to storms. *Permittee may wait longer than 7 days to install erosion control following disturbance in sediment reuse areas do to the need to allow soils to stabilize prior to planting and/or mulch.				
BMP-17	**Environmental Awareness Training** For each activity, all Project personnel will participate in a worker environmental awareness program. Under this program, Project personnel will be informed about the presence of special-status species and habitats associated with the species and that unlawful take of the animal or destruction of its habitat is a violation of applicable state and/or federal laws. Prior to Project activities, a qualified biologist approved by USFWS and NMFS will instruct all Project personnel about (1) the description and status of the species; (2) the importance of their associated habitats; and (3) a list of measures being taken to reduce impacts on these species during Project implementation. A fact sheet conveying this information will be prepared for distribution to the Project crew and anyone else who enters the Project site. A member of the Project crew will be appointed and identified during the environmental awareness program who will be the point of contact for any employee or contractor who might encounter a listed species. The representative's	1. Qualified biologist shall conduct environmental training for Project personnel in accordance with the BMP.	1. Retain a qualified biologist approved by USFWS and NMFS to conduct environmental awareness training. 2. Ensure training gets completed in accordance with the BMP. 3. Designate a point of contact that will serve as the primary point of contact should a listed species be encountered. Provide that contact's name and	1. Prior to construction 2. Prior to construction 3. Prior to construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	name and telephone number will be provided to USFWS and NMFS prior to the initiation of any activities.		telephone number to USFWS and NMFS.		
BMP-18	**Firearms** No firearms (except for federal, State, or local law enforcement officers and security personnel) will be permitted at the Project site to avoid harassment, killing or injuring of wildlife.	1. Include BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-19	**Domestic Animals** No animals (e.g., dogs or cats) can be brought to the Project site to avoid harassment, killing or injuring of wildlife.	1. Include BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-20	**Minimize Injury or Mortality of Fish during In-Channel Vegetation Clearing and Dredging** Prior to in-channel dredging work, fish will be captured and relocated if necessary to avoid and minimize construction-related impacts to special-status fish species. The following measures are consistent with standard methods established by USFWS, NMFS, and CDFW for the capture, handing, and relocation of listed salmonids (steelhead, coho salmon) and tidewater gobies. ▪ Fish relocation activities will be performed only by qualified fisheries biologists, with a current CDFW and/or USFWS/NMFS collectors permit, and experience with fish capture and handling.	1. Fisheries biologist shall implement the relocation measures in accordance with the BMP. He/she shall determine appropriate release locations, ensure the exclusion net or screens are no greater than 3.1 mm, and aim on conducting the relocation activities three days prior to the	1. Retain a qualified fisheries biologist to conduct fish relocation work. 2. Ensure fisheries biologist follows procedures outlined in the BMP. 3. Ensure that reports are submitted to CDFW, USFWS	1. Prior to in-channel construction activities 2. Prior to and during in-channel construction activities 3. During in-water	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	▪ Periodically measure air and water temperatures. Cease activities when water temperatures exceed temperatures allowed by CDFW and NMFS. ▪ Exclude fish from re-entering work area by blocking the stream channel above and below the work area with fine-meshed net or screens. Mesh will be no greater than 1/8 inch (3.1mm). The bottom edge of net or screen will be completely secured to the channel bed to prevent fish from re-entering work area. Exclusion screening will be placed in areas of low water velocity to minimize impingement of fish. Screens will be checked periodically and cleaned of debris to permit free flow of water. ▪ Prior to capturing fish, the qualified biologist will determine the most appropriate release location(s). Consider the following when selecting release site(s): a) Similar water temperature as capture location b) Ample habitat for captured fish c) Low likelihood of fish re-entering work site or becoming impinged on exclusion net or screen. ▪ Seining is the preferred method of fish capture, but electrofishing is acceptable with authorization from the appropriate state and federal resource agencies. ▪ Minimize handling of special-status fish. However, when handling is necessary, always wet hands or nets prior to touching fish. ▪ Temporarily hold fish in cool, shaded, aerated water in a container with a lid. ▪ Provide aeration with a battery-powered external bubbler. Protect fish from jostling and noise and do not remove fish from this container until time of release. ▪ Place a thermometer in holding containers and, if necessary, periodically conduct partial water changes to maintain a stable water temperature. If water temperature reaches or exceeds those allowed by	start of in-water construction activities. 3. Count and record the number of fish captured and submit reports to CDFW, USFWS and/or NMFS. 4. If mortality during relocation exceeds 5 percent, stop efforts and contact USFWS, NMFS and CDFW for guidance on how to proceed.	and/or NMFS in a timely fashion. 4. Ensure that relocation work halts if mortality exceeds 5 percent	construction activities 4. During in-water construction activities	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	CDFW and NMFS, fish should be released and rescue operations ceased. ▪ Avoid overcrowding in containers. Have at least two containers and segregate young-of-year (YOY) salmonids and tidewater gobies from larger age-classes for salmonids to avoid predation. ▪ If fish are abundant, periodically cease capture, and release fish at predetermined locations. ▪ Visually identify species and estimate year-classes of fish at time of release. ▪ Count and record the number of fish captured. Avoid anesthetizing or measuring fish. ▪ Submit reports of fish relocation activities to CDFW and USFWS/NMFS in a timely fashion. ▪ If feasible, plan on performing initial fish relocation efforts several days prior to the start of in-water construction. This provides the fisheries biologist an opportunity to return to the work area and perform additional passes immediately prior to construction. In many instances, additional fish will be captured that eluded the previous day's efforts. ▪ If mortality during relocation exceeds 5 percent, stop efforts and immediately contact the appropriate agencies (CDFW and USFWS/NMFS).				
BMP-21	**Minimize Injury or Mortality of Special-Status Reptiles and Amphibians during Vegetation Clearing, Grading, and Dredging** During vegetation clearing, grading, and dredging work, a qualified biologist (approved by the USFWS and CDFW) will be present to implement and oversee the following measures to minimize the potential for injury or mortality of California red-legged frogs (CRLF), San Francisco garter snakes (SFGS), and western pond turtles (WPT). ▪ Prior to work each day, and then during all construction activities that have the potential to result in take of any	1. Qualified biologist shall implement pre-construction surveys/inspections and conduct monitoring measures in accordance with the BMP. In particular: a) Biologist shall halt work in the event	1. Retain a qualified biologist to implement and oversee CRLF, SFGS and WPT protection measures. 2. Ensure that qualified biologist complies with		

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	of these species, the biological monitor will inspect each work site to ensure that no CRLF, SFGS, or WPT are present. Care will be taken to examine any ground crevices, rodent burrows, stockpiled materials (e.g., under boards), or rock. The biological monitor will have the responsibility and authority to temporarily stop work at a site if an individual of one of these species is observed. If a CRLF, SFGS, or WPT is detected in the work area, all construction work will stop until the monitor has either relocated the individual or the individual has left the work area of its own volition. ▪ If an individual CRLF or WPT is observed in an area where it could potentially be injured or killed by Project implementation, the monitor- working under an approved biologist- will capture the individual and relocate it to suitable habitat well outside the work area. The relocation site for each species will be approved by the USFWS and CDFW in advance. ▪ If an individual SFGS is observed in an area where it could potentially be injured or killed by Project implementation, an approved biologist will capture the individual and relocate it to suitable habitat well outside the work area only with CDFW approval. If CDFW approval to capture SFGS is not obtained (because the species is listed as fully protected), the approved biologists or monitor will watch the individual until it has moved outside the work area. ▪ Any injuries to or mortalities of these species will be reported to the USFWS and CDFW within one working day. Should there be any mortality of CRLF or SFGS as a result of project activities, the specimen will be collected by the qualified biologist and sent to the USFWS as soon as possible after its discovery. ▪ The drivers of all project-related vehicles and equipment will be instructed to drive no more than 20	that an individual CRLF, SFGS, or WPT is observed in the work area until the individual has left the area on its own volition. b) Biologist shall contact USFWS and CDFW if an observed CRLF or WPT could be potentially injured or killed and will relocate it to suitable habitat. Biologist shall contact CDFW if an individual SFGS could be potentially injured or killed. *c)* Biologist shall report any injuries of CRLF, SFGS, or WPT to USFWS and CDFW within one working day.	measures outlined in the BMP.		

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	mph while within work areas and to look for CRLF, SFGS, and WPT; if an individual is observed, the drivers will be instructed to stop their vehicles until the individual(s) are out of harm's way or contact the on-site biologist. ▪ Uneaten human food and trash attracts crows, ravens, coyotes, and other predators of the CRLF, SFGS, and WPT. A litter control program will be instituted at each Project site. All workers will ensure their food scraps, paper wrappers, food containers, cans, bottles, and other trash are deposited in covered or closed trash containers. The trash containers will be removed from the Project site at the end of each working day. ▪ Pipes, conduits and other Project materials could provide shelter for CRLF or SFGS. All pipes, conduits, or similar structures that are stored at the site for one or more overnight periods will be either stored on an open-top trailer to elevate the materials above ground, securely capped prior to storage, or thoroughly inspected by the qualified biologist before the pipe is buried, capped, or otherwise used or moved. ▪ Plastic monofilament netting (erosion control matting), loosely woven netting, or similar material in any form will not be used at the Project site because CRLF and WPT can become entangled and trapped in them. Any such material found on site will be immediately removed by the qualified biologist, Project personnel, or the applicant. Materials utilizing fixed weaves (strands cannot move), polypropylene, polymer or other synthetic materials will not be used.				
BMP-22	**Avoid and Minimize Impacts to Nesting Birds during Vegetation Clearing, Grading, and Dredging** The following measures will be implemented to first minimize the potential for Project activities to impact nesting	1. Qualified biologist shall conduct nesting bird surveys in areas where construction work is	1. If possible, schedule vegetation clearing work either early or late in the avian	1. Prior to construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	birds by avoiding work during the nesting season to the extent feasible, and then avoid impacts on active nests during work that must occur during the nesting season: ▪ Vegetation clearing will occur either early or late in the avian nesting season (e.g., before mid-March or after mid-July), or will occur entirely outside the February 15-August 15 nesting season, to the extent feasible to minimize the potential for active nests to be present when such work occurs. ▪ For activities occurring between February 15 and August 15, a qualified biologist will survey the Project area for nesting birds. This survey will occur no less than 5 days prior to starting work. If a lapse in Project-related work of 5 days or longer occurs, another focused survey will be conducted before Project work can be reinitiated. If nesting birds are found, a no-work buffer will be established around the nest and maintained until the young have fledged (generally 50-300 feet, depending on species and location). A qualified biologist will identify an appropriate buffer based on a site specific-evaluation and in consultation with CDFW. Work will not commence within the buffer until fledglings are fully mobile and no longer reliant upon the nest or parental care for survival.	planned to occur between February 15 and August 15. Surveys will be conducted at least 5 days prior to the start of construction activities in accordance with the BMP. 2. If nesting birds are observed, a no-work buffer will be established through consultation with CDFW.	nesting season (before mid-Marsh or after mid-July) or outside the nesting season (February 15 – August 15). 2. Retain a qualified biologist to conduct nesting bird surveys. 3. Ensure that biologist conducts surveys in accordance with BMP. 4. Ensure that the biologist contacts CDFW regarding establishment of the no-work buffer.	2. Prior to construction activities 3. During construction 4. During construction	
BMP-23	**Minimize Impacts to Woodrat Nests during Vegetation Clearing** The following measures will be implemented to minimize impacts to nests of the San Francisco dusky-footed woodrat: ▪ No more than 30 days prior to the commencement of vegetation clearing in scrub or riparian habitats potentially supporting woodrat nests, a qualified biologist will survey accessible portions of the work areas for woodrat nests. The survey shall cover the vegetation removal work area and a 10-foot buffer. Any dusky-footed woodrat nests found, and that are	1. Qualified biologist shall conduct woodrat survey at least 30 days prior to the start of vegetation clearing in scrub or riparian habitat. Biologist shall implement impact minimization measures	1. Retain a qualified biologist to conduct San Francisco dusky-footed woodrat survey. 2. Ensure that biologist conducts woodrat survey in accordance with the	1. Prior to vegetation clearing work in scrub or riparian habitat 2. During vegetation clearing work in scrub or	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	accessible, shall be marked in the field with flagging tape. ▪ Dusky-footed woodrat nests that are within the vegetation removal work area and 10-foot buffer will be dismantled, to the extent that the nests are accessible. A qualified biologist shall dismantle and relocate the nest material outside the work area. Due to the density of the riparian canopy (which would reduce the potential for predation by avian predator during dismantling) and safety concerns for biologists working in the muddy conditions and dense vegetation present within the floodplain, nest dismantling can occur any time of day (rather than just in the evening as is typical). Material from each nest will be placed in a suitable location within riparian habitat along Butano Creek but outside the work area. ▪ Nests that are not readily accessible due to height within trees, muddy conditions, dense vegetation, or other reasons will not be dismantled. Prior to the removal of vegetation containing such nests, the nests will be disturbed, either by heavy equipment (e.g., lightly shaking a tree that contains a nest or just touching a nest) or by the biologist who will be performing construction monitoring for special-status reptiles and amphibians (e.g., with a pole), to encourage any woodrats to exit the nest before destruction of the nest occurs.	outlined in the BMP, including: a. Dismantling of woodrat nests within the vegetation removal work area (if accessible). b. Disturbance of the nests prior to removal to encourage any woodrats to exit the nest prior to nest destruction.	measures listed in BMP.	riparian habitat	
BMP-24	**Perform Focused Surveys for Special-Status Plant Species** Within one year prior to commencement of ground disturbing activities, a qualified botanist will perform surveys for coastal marsh milk vetch (*Astragalus pycnostachyus* var. *pycnostachyus*) and Choris' popcornflower (*Plagiobothrys chorisianus* var. *chorisianus*). Surveys will occur within portions of the Project footprint that contain suitable habitat for these species. If special-status plants are detected within	1. Botanist shall conduct survey at least one year prior to ground disturbing activities in Butano Marsh.	1. Retain a qualified botanist to perform coastal marsh milk vetch and Choris' popcornflower survey.	1. Prior to ground-disturbing activities in 2. Prior to construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	the Project footprint or within a 25-foot radius of the Project footprint, SMRCD or its contractor will implement BMP-25.		2. Ensure botanist conducts survey in accordance with the BMP.		
BMP-25	**Avoid Impacts on Special-Status Plant Species** If special-status plants are detected within the construction zone or within a 25-foot radius of the Project footprint, SMRCD will adjust the construction footprint or establish an exclusion area to avoid impacts to the plants, as feasible. Avoidance is anticipated to be potentially feasible for portions of the project in coyotebrush scrub, but not feasible for portions of the project within Butano Marsh. Locations of special-status plant populations will be clearly identified in the field by staking, flagging, or fencing prior to the commencement of activities that may cause disturbance. A qualified botanist shall determine whether direct and/or indirect impacts would occur. If the botanist determines that impacts would not be completely avoided, BMP-26 will be implemented.	1.Botanist shall install flagging, staking or fencing of special-status plants identified during implementation of BMP-24.	1. If special-status plants are identified per BMP-24, retain a qualified botanist to flag identified special-status plants within construction footprint. 2. Ensure botanist completes flagging of identified special-status plants. 3. Adjust the construction footprint or establish exclusion area to avoid special-status plants.	1. Prior to construction 2. Prior to construction 3. Prior to construction	
BMP-26	**Minimize Impacts on Special-Status Plant Species** If avoidance is not feasible, then SMRCD will implement measures to minimize the impact on the species. Minimization measures may include transplanting coastal marsh milk vetch, seed collection and dispersal for Choris' popcornflower, or other conservation strategies that will protect the viability of the local population. Impacts to coastal marsh milk vetch may require a management plan for this species. If minimization measures are implemented, monitoring of plant populations will be conducted annually	1. Qualified botanist shall develop a management plan that entails either transplanting coastal mark milk vetch, seed collection and dispersal for Chorsis' popcornflower, or other conservation strategies.	1. If avoidance measures listed in BMP-25 are not feasible, retain a qualified botanist to assist in developing minimization measures or a management plan.	1. Prior to construction 2. Prior to construction 3. Annually for 5 years after implementation of the selected	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	for 5 years by a qualified botanist to assess the BMP's effectiveness and results shall be reported to CDFW and any other relevant agencies. The performance standard for the BMP will be no net reduction in the size or viability of the local population.	2. Qualified botanist shall monitor plant populations annually for 5 years (either milk vetch, Choris' popcorn flower, or other selected conservation strategy) and submit results to CDFW and other relevant agencies.	2. Ensure botanist develops management plan in accordance with the BMP. 3. Ensure that qualified botanist conducts plant monitoring for at least 5 years and that the results get submitted to CDFW and appropriate agencies.	conservation strategy.	
BMP-27	**Invasive Plant Control** In order to minimize the spread of invasive plants, all equipment (including personal gear) will be cleaned of soil, seeds, and plant material prior to arriving on the Project site to prevent introduction of undesirable plant species. Any straw bales that are used will be certified weed free.	1. Include invasive plant control BMP in the contract specifications. 2. Confirm measure is implemented.	1. Confirm BMP is incorporated in the contract specifications. 2. Ensure corrective action if measure gets improperly implemented.	1. During development of plans and specifications 2. During construction	
BMP-28	**Immediately Halt Construction If Cultural Resources Are Discovered, Evaluate All Identified Cultural Resources for Eligibility for Inclusion in the NRHP/CRHR, and Implement Appropriate Protection Measures for Eligible Resources** If any cultural resources, such as structural features, unusual amounts of bone or shell, flaked or ground stone artifacts, historic-era artifacts, human remains, or architectural remains, are encountered during any project construction activities, work will be suspended immediately at the location	1. If any cultural resources are discovered, halt construction immediately within 50 feet of the find and contact SMRCD. 2. Do not resume construction in the vicinity of the find(s)	1. Confirm that any discoveries of archaeological finds are evaluated and addressed properly in accordance with the BMP. 2. Provide clearance for construction	1. During construction, if necessary 2. Following any cultural resource discovery 3. Following any cultural	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	of the find and within a radius of at least 50 feet and the SMRCD will be contacted. All cultural resources accidentally uncovered during construction within the project site will be evaluated for eligibility for inclusion in the NRHP/CRHR. Resource evaluations will be conducted by individuals who meet the U.S. Secretary of the Interior's professional standards in archaeology, history, or architectural history, as appropriate. If any of the resources meet the eligibility criteria identified in Public Resources Code (PRC) Section 5024.1 or 14 CCR Section 21083.2(g), protection measures will be developed and implemented in accordance with State CEQA Guidelines Section 15126.4(b) before construction resumes. For resources eligible for listing in the NRHP/CRHR that would be rendered ineligible by the effects of project construction, additional protection measures will be implemented. Protection measures for archaeological resources may include (but are not limited to) avoidance; incorporation of sites within parks, greenspace, or other open space; capping the site; deeding the site into a permanent conservation easement; or data recovery excavation. Protection measures for archaeological resources will be developed in consultation with responsible agencies and, as appropriate, interested parties such as Native American tribes. Native American consultation is required if an archaeological site is determined to be a tribal cultural resource. Implementation of the approved protection measures would be required before resuming any construction activities with potential to affect identified eligible resources at the site.	until clearance is given by SMRCD. 3. Implement all additional protection measures determined by SMRCD.	activities to resume once appropriate. 3. For any resources that would be rendered eligible for listing in NRHP/CRHR due to effects of project construction, determine additional protection measures in consultation with responsible agencies. Ensure implementation of those measures.	resource discovery	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
BMP-29	**Immediately Halt Construction if Human Remains Are Discovered and Implement Applicable Provisions of the California Health and Safety Code** If human remains are accidentally discovered during the proposed Project's construction activities, the requirements of California Health and Human Safety Code Section 7050.5 will be followed. Potentially damaging excavation will halt in the vicinity of the remains, with a minimum radius of 100 feet, and the San Mateo County Coroner will be notified. The Coroner is required to examine all discoveries of human remains within 48 hours of receiving notice of a discovery on private or state lands (California Health and Safety Code Section 7050.5[b]). If the Coroner determines that the remains are those of a Native American, he or she must contact the Native American Heritage Commission (NAHC) by phone within 24 hours of making that determination (California Health and Safety Code Section 7050[c]). Pursuant to the provisions of PRC Section 5097.98, the NAHC will identify a Most Likely Descendent (MLD). The MLD designated by the NAHC will have at least 48 hours to inspect the site and propose treatment and disposition of the remains and any associated grave goods. SMRCD will work with the MLD to ensure that the remains are removed to a protected location and treated with dignity and respect.	1. Include a stop work provision for the discovery of human remains in the project plans and specifications. 2. In the event that human remains are encountered, halt work and contact SMRCD. 3. Do not resume construction in the vicinity of the finds until clearance is given by SMRCD.	1. Confirm that a stop work measure for the discovery of human remains is included in the project plans and specifications. 2. The state shall immediately contact the San Mateo County Coroner upon notification of any findings of human remains. 3. Confirm that any discoveries of human remains are evaluated and addressed properly in accordance with the BMP.	1. During preparation of plans and specifications 2. During construction 3. During construction	
Mitigation Measures					
AQ-1	**Material Hauling NOx Emissions Control and Cap Measures** SMRCD or its contractor shall implement any combination of the measures described below to reduce nitrogen oxides (NO_x) emissions, in any given construction year, to ensure Project NO_x emissions are capped below an average of 54 pounds per day. As a performance standard, the mitigation measures shall demonstrate that off-road equipment (greater than 50 horsepower [hp]) and	1. Include NO_x emission reduction measures into the project plans and specifications. 2. Implement and document NO_x emission reduction measures to meet	1. Confirm NO_x emission reduction measures are incorporated into the project plans and specifications. 2. Confirm NO_x emission reduction measures are	1. During development of the plans and specifications 2. During construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	material hauling vehicles used during construction (i.e., owned, leased, and subcontracted vehicles) will achieve emission reductions to the extent feasible. Equipment and material hauling vehicles shall achieve at least a project-wide fleet average of 20 percent NO_X reduction compared to the most recent California Air Resources Board (CARB) fleet average up to a Tier IV-equivalent engine. The SMRCD or its contractor will implement any of the following examples of appropriate mitigation to achieve this reduction including, but not limited to: limit the number of daily one-way material hauling trips, use alternative-fueled equipment, alter the phasing of construction activities, use of chemical additives or after-market devices to reduce emissions on existing equipment, use higher tier (Tier 3 or greater) and/or newer models for equipment and/or material hauling trucks, use of electrically powered equipment, reduction in total equipment hours, use of alternative fuels, or engine retrofit technology.	threshold (54 pounds per day).	adequate and implemented properly.		
HYD/WQ-1	**Water Turbidity Monitoring.** The SMRCD and/or State Parks will retain staff to monitor turbidity levels in Butano Marsh and Butano Creek within 150 feet downstream of the Project area prior to and during construction activities. Observations recorded prior to construction will be used to establish baseline conditions for the Project area. During construction activities, turbidity levels downstream of the Project area will be monitored hourly and will not increase more than 20 percent above baseline conditions or 10 percent if turbidity levels are greater than 50 NTUs. If at any point turbidity exceeds the response threshold limit (i.e., 20 percent above baseline conditions or 10 percent if	1. Water quality monitors shall monitor turbidity levels on an hourly basis. In the event that turbidity levels increase more than 20 percent above baseline conditions or 10 percent if turbidity levels are greater than 50 NTUs, halt construction and	1. Retain staff to monitor turbidity levels in Butano Marsh and Butano Creek. 2. Confirm that turbidity levels do not exceed 20 percent above baseline conditions or 10 percent if turbidity	1. Prior to construction 2. During in-water construction activities	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	baseline turbidity levels are greater than 50 NTUs), instream work activities will halt until turbidity levels fall below this threshold and additional response measures are implemented. Additional response measures may include repair or augmentation of silt fences, installation of additional silt fences, modification to instream work methods, and/or other turbidity control measures. Turbidity levels are not to exceed 20 percent above baseline conditions or 10 percent above baseline conditions if turbidity levels are greater than 50 NTUs during any phase of the Project.	implement additional response measures.	levels are greater than 50 NTUs.		
HYD/WQ-2	The SMRCD and/or State Parks will retain staff to monitor dissolved oxygen levels in Butano Marsh, Butano Creek and the lagoon downstream of the Project area before, during, and after construction. Pre-construction monitoring will be used to indicate baseline dissolved oxygen levels. As part of the Project, a spray aeration system will be installed at strategic levels in Butano Creek and Butano Marsh. If dissolved oxygen levels in Butano Marsh, Butano Creek, and or the lagoon drop below 8.0 mg/L, additional aeration devices will be installed. Efforts will be made to maintain dissolved oxygen levels in Butano Creek and open water area in the marsh at or above 7.0 mg/L.	1. Water quality monitors shall monitor dissolved oxygen levels. In the event that dissolved oxygen levels drop below 8.0 mg/L, install additional aeration devices to maintain levels at or below 7.0 mg/L.	1. Retain staff to monitor dissolved oxygen levels in Butano Marsh, Butano Creek, and Pescadero Lagoon. 2. Confirm that dissolved oxygen levels remain below 7.0 mg/L.	1. Prior to construction 2. Prior to, during, and after in-water construction activities	
TR-1	**Prepare and Implement a Construction Traffic Management Plan.** SMRCD or its contractor will prepare and implement a traffic management plan to reduce potential impacts on the circulation system, including interference with local emergency response planning, potential traffic safety hazards, and impeding access for emergency responders. Development and implementation of the	1. Prepare project construction plans and specifications to include the mitigation measure. 2. Prepare and implement a Traffic Management Plan that includes, at a	1. Review and approve project construction plans and specifications to confirm that the mitigation measure is included.	1. During development of plans and specifications 2. Prior to and during construction	

	BMP or Mitigation Measure	Contractor Responsibility	SMRCD Responsibility	Monitoring Schedule	Completion Date and Initials
	traffic management plan will be coordinated with Caltrans. The plan will include, but will not be limited to, the following items: ▪ Implement comprehensive traffic control measures, including scheduling of work within the roadway to avoid peak traffic hours, lane closure procedures, warning and detour signs (if required), flaggers, barricades, speed control devices, cones for drivers, and other measures. ▪ Notify adjacent property owners, CAL FIRE, and public safety personnel regarding timing of lane closures and/or work within the roadway. Coordinate with Caltrans regarding lane closures on State Route 1 and obtain an encroachment permit.	minimum, all of the elements in the mitigation measure including notification of adjacent property owners, CAL FIRE, and public safety personnel. 3. If traffic disruption is anticipated along State Route 1, apply for and obtain an encroachment permit from Caltrans.	2. Review and approve the Traffic Management Plan, and ensure that it is implemented. 3. If encroachment permit is necessary, review application.	3. Prior to construction	