LSA ASSOCIATES, INC.
703 PALOMAR AIRPORT ROAD
SUITE 260
CARLSBAD, CALIFORNIA 92011

760.931.5471 TEL
760.918.2458 FAX

BERKELEY
FRESNO
IRVINE

PALM SPRINGS
PT. RICHMOND
RIVERSIDE

ROCKLIN
SAN LUIS OBISPO

M E M O R A N D U M

DATE: May 11, 2016

TO: Andy Webster, P.E., Rancho California Water District

FROM: Michael Slavick, Senior Air Quality Specialist, LSA Associates, Inc.

SUBJECT: Santa Rosa Water Reclamation Facility Rehabilitation Project, Murrieta, California
Air Quality and Greenhouse Gas Technical Memorandum
(LSA Project No. RCW1601)

Background

Rancho California Water District (RCWD), Western Municipal Water District (WMWD), and Elsinore Valley Municipal Water District (EVMWD) have entered into a Joint Powers Authority (JPA) Agreement to form the Santa Rosa Regional Resources Authority (Authority). The formation of the Authority enables the agencies to jointly own and operate the Santa Rosa Water Reclamation Facility (SRWRF) and the common or shared sewer collection facilities, tributary to the SRWRF. The Authority proposes the Santa Rosa Water Reclamation Facility Rehabilitation Project (project) which includes the replacement of components of the existing infrastructure, reconfigure existing piping, and the installation of new components within the existing facility footprint. The SRWRF is located east of the intersection of Washington Avenue and Fig Street in the City of Murrieta, Riverside County, California (attached Figure 1).The goals and objectives of the SRWRF Rehabilitation Project include the following:

- Maximize the useful life of the existing assets;
- Replace obsolete, inefficient, and failing equipment;
- Improve operational characteristics and treatment quality;
- Reduce operations and maintenance costs; and
- Ensure reliable and redundant treatment capacity at 5.0 million gallons per day (mgd).

LSA Associates, Inc. (LSA) was contracted by the Authority to assess the air quality and greenhouse gas emission impacts associated with the proposed project. The project proposes to rehabilitate and/or replace components in four different unit process areas: preliminary treatment, secondary treatment, tertiary treatment, and solids handling. The preliminary treatment portion of the project would include replacement of the aerated grit removal system which will be installed in a new location in the east dry pit of the influent pump station and replacement of the existing influent conveyance pipes and valves with vault access for valves. The secondary treatment portion would include the replacement of the Jet-Tech aeration system, mixing pumps, decant assembly, and solids handling pumps. The tertiary treatment portion would include the reconfiguration of equalization basins piping, replacement of the existing launders and sludge collection equipment and reconfiguration of the sludge piping. The solids handling portion would include installation of the aerobic digester, solids pumps, and solids handling infrastructure adjacent to the new digester. Repairs and concrete coatings

would also be implemented where required. This technical memorandum describes the air quality and greenhouse gas emissions analyses methodology and impact assessments.

Methods

The air quality and greenhouse gas evaluation was prepared in accordance with the requirements of California Environmental Quality Act (CEQA) to determine if significant air quality impacts are likely to occur in conjunction with implementation of the Proposed Project. South Coast Air Quality Management District (SCAQMD) has published the *CEQA Air Quality Handbook* (Handbook) and updates on its website to provide local governments with guidance for analyzing and mitigating project-specific air quality impacts. The Handbook provides standards, methodologies, and procedures for conducting air quality analyses in environmental impact reports and was used extensively in the preparation of this analysis. SCAQMD has published additional guidance in their *Final Localized Significance Threshold Methodology* (2008) that is intended to provide guidance in evaluating localized effects from emissions generated by a project. These documents were also used in the preparation of this analysis. The analysis also makes use of the Air Resources Board (ARB) OFFROAD equipment emission factors for determination of daily and annual construction emissions.

The details of the proposed 32-month project schedule and list of construction equipment capable of completing the anticipated project construction have been provided by Black & Veatch (2016), and are provided in Appendix A. Construction activities produce combustion emissions from various sources such as site preparation, pipeline excavation, equipment installations and replacements, and motor vehicles transporting the construction crew and equipment. Exhaust emissions from construction activities would vary daily as construction activity levels change. The use of construction equipment would be limited to a very small project area on-site (See Figure 2) and result in localized exhaust emissions. Operational emissions associated with the project site would remain unchanged before and after construction as there would be no increase in capacity of the SRWRF. The new and replacement equipment will not generate any increases in operational emission at the project site.

CEQA Plus - General Conformity Statement

The U.S. Environmental Protection Agency (EPA) published *Determining Conformity of General Federal Actions to State or Federal Implementation Plans; Final Rule*, in the 30 November 1993, Federal Register (40 CFR Parts 6, 51, and 93). Federal regulations state that no department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license to permit, or approve any activity that does not conform to an applicable implementation plan. It is the responsibility of the Federal agency to determine whether a Federal action conforms to the applicable implementation plan, before the action is taken (40 CFR Part 1 51.850[a]). Federal actions may be exempt from conformity determinations if they do not exceed designated *de minimis* levels for criteria pollutants (40 CFR Part 51.853[b]). The proposed action would involve construction emissions, and the annual construction emissions are *de minimis*. Operational activities would be the same as existing conditions. Therefore no net increase in operational emissions would result from the proposed action. This proposed action falls under the Record of Non-Applicability (RONA) category and is documented with this RONA in Appendix B.

AIR QUALITY ANALYSIS

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

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

No Impact. The project site is within the South Coast Air Basin (Basin), which includes (among other areas) western Riverside County. The South Coast Air Quality Management District (SCAQMD) is the local agency responsible for the administration and enforcement of air quality regulations in the basin. The applicable air quality plan for the project area is the SCAQMD's 2012 Air Quality Management Plan (AQMP) which is designed to satisfy the planning requirements of both the Federal and State Clean Air Acts. The AQMP outlines strategies and measures to achieve Federal and State standards for healthful air quality for all areas within SCAQMD's jurisdiction. The SCAQMD's AQMP contains a comprehensive list of pollution control strategies to reduce emissions and achieve ambient air quality standards. These strategies are developed, in part, based on regional population, housing, and employment projections prepared by Southern California Association of Governments (SCAG).

SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino and Imperial counties. SCAG addresses regional issues relating to transportation, economy, community development, and southern California environment. With regard to air quality planning, SCAG has prepared the Regional Comprehensive Plan and Guide (RCPG), which includes Growth Management and Regional Mobility chapters that form the basis for the land use and transportation control portions of the 2012 AQMP. These documents are used in the preparation of the air quality forecasts and consistency analysis included in the AQMP. Both the RCPG and AQMP are based, in part, on projections originating with county and city general plans.

The project proposes the rehabilitation and replacement of components of existing infrastructure within the SRWRF. Because the project does not include any growth-inducing components (i.e., no increase in existing capacity), it would be consistent with projections contained in the surrounding jurisdiction's General Plans, and thus, consistent with SCAG and AQMP growth forecasts. Because the proposed project is consistent with the local general plans and the regional growth management in the RCPG, pursuant to SCAQMD guidelines, it would be considered consistent with the region's AQMP. Accordingly, project-related emissions are accounted for in the AQMP, which was created to bring the Basin into attainment for all criteria pollutants. The proposed project is considered consistent with the AQMP, and would not conflict with or obstruct implementation of the plan. No impact would occur.

b) ***Violate any air quality standard or contribute substantially to an existing or projected air quality violation?***

Less than Significant Impact. Operational emissions generated from the new or replacement equipment at the SRWRF would not change before or after construction. Additionally, vehicle trips associated with the operation of the SRWRF would remain unchanged and would not generate any significant emissions. Therefore, operational emissions would be less than significant.

The SCAQMD has developed the *CEQA Air Quality Handbook* (1993) that establishes suggested significance thresholds based on the volume of pollution emitted from construction activities. According to the *CEQA Air Quality Handbook*, any project in the Basin with daily construction emissions that exceed any of the following thresholds should be considered to have a significant air quality impact:

- 75 pounds per day of volatile organic compounds (VOC);
- 100 pounds per day of oxides of nitrogen (NO_X);
- 550 pounds per day of carbon monoxide (CO);
- 150 pounds per day of oxides of sulfur (SO_X)
- 150 pounds per day of particulate matter equal to or less than 10 microns in diameter (PM_{10}); and
- 55 pounds per day of particulate matter 2.5 microns or less in diameter ($PM_{2.5}$).

During project construction, emissions associated with fugitive dust and exhaust from construction equipment would be generated. Daily emissions would be relatively low because only a limited number of truck trips (e.g., up to two truck trips per day) would be required to haul construction materials and soil to and from the site, and only a few pieces of construction equipment (e.g., backhoe, crane, loader, pickup trucks, and miscellaneous trucks) would be active at any given time. The total construction work area is less than five acres. Construction emissions were estimated using the emission factors from the OFFROAD2011 for construction equipment and EMFAC2014 for on-road trucks and crew vehicles. The resultant emissions associated with construction of the project are summarized in Table 1.

Table 1
EMISSION SUMMARY OF PEAK CONSTRUCTION ACTIVITIES
(POUNDS/DAY)

VOC	NO_X	CO	SOx	PM_{10}	$PM_{2.5}$
Construction Emissions					
7.71	28.35	57.30	0.11	3.38	2.02
SCAQMD Thresholds					
75	100	550	150	150	55
Significant?					
No	No	No	No	No	No
SCAQMD LST Thresholds					
n/a	672	8,547	n/a	96	31
Significant?					
-	No	No	-	No	No

Source: LSA 2016

As shown in Table 1, project construction emissions would not exceed SCAQMD significance thresholds for any criteria pollutants. Project construction would employ dust

control measures as required by SCAQMD Rule 403 and would not result in emissions that would violate any air quality standard or contribute substantially to an existing or projected air quality violation, nor result in a cumulatively considerable net increase of PM_{10} and $PM_{2.5}$. In addition, construction emissions would be temporary and localized within the immediate project vicinity. The SCAQMD has adopted its Localized Significance Threshold (LST) methodology, which provides guidance for evaluating the significance of impacts associated with construction and operation using a dispersion model-based approach. The LST methodology is used to back-calculate the emissions that would result in an exceedance of an air quality standard. LSTs provide area-specific emission thresholds for which a project could have a significant adverse impact on the ambient air quality. The proposed project is located in Source-Receptor Area 26, the Temecula Valley area. Table 1 presents the LSTs for the 5-acre project site with the receptors located approximately 100 meters within the Temecula Valley area. As shown in Table 1, LST thresholds would not be exceeded. Therefore, project construction emissions would result in a less than significant impact to air quality.

c) ***Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?***

Less than Significant Impact. SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. As discussed in response (a), the proposed project would be consistent with the AQMP, which is intended to bring the Basin into attainment for all criteria pollutants. In addition, and as discussed in response (b), daily emissions would be below a level of significance and temporary in duration. Accordingly, cumulative impacts would be less than significant.

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

Less than Significant Impact. Sensitive receptors within one mile of the project site include approximately 100 rural residences; however, the nearest residence is approximately 745 feet (227 meters) from the project site. There is also one non-conforming residential use located on land zoned as civic/institutional approximately 250 feet to the south. Any project which has the potential to directly impact a sensitive receptor located within one mile and results in a health risk greater than ten in one million would be deemed to have a potentially significant impact. Construction activities would generate diesel emissions from construction equipment. Construction at SRWRF would be completed within 32 months. Diesel exhaust particulate matter is known to the State of California as a source of carcinogenic compounds. The risks associated with exposure to substances with carcinogenic effects are typically evaluated based on a lifetime of chronic exposure, which is defined in the California Air Pollution Control Officers' Association Air Toxics "Hot Spots" Program Risk Assessment Guidelines as 24 hours per day, 7 days per week, 365 days per year, for 70 years. While some toxic air contaminants (TACs) can have long-term and/or short-term effects, diesel TAC has been shown by the ARB to have little or no short-term impact. The ARB determined that the chronic impact of diesel particulate matter was of more concern than the acute impact in the *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*

(ARB 2000). In that document, ARB noted that "Our analysis shows that the potential cancer risk from inhalation is the critical path when comparing cancer and non-cancer risk. In other words, a cancer risk of 10 cases per million from the inhalation of diesel particulate matter (DPM) will result from DPM concentrations that are much less than the DPM or TAC concentrations that would result in chronic or acute non-cancer hazard index values of 1 or greater." Consequently, any analysis of diesel TAC should focus on the long-term, chronic cancer risk posed by diesel emissions. Chronic cancer risk is normally measured by assessing what the risk to an exposed individual from a source of TACs would be if the exposure occurred over 70 years. Diesel exhaust particulate matter would be emitted from heavy construction equipment during the project's 32-month construction period. Diesel exhaust particulate matter is considered to be carcinogenic; therefore, long-term exposure to diesel exhaust emissions have the potential to result in adverse health impacts. However, because of the short-term nature of project construction, exposure to diesel exhaust emissions during construction would be less than significant and no further analysis is required. As discussed in response (b), operational emissions associated with the SRWRF would not increase above existing conditions. During the operation of the proposed SRWRF, the new and replacement equipment would not result in any potentially significant impacts to nearby sensitive receptors.

e) ***Create objectionable odors affecting a substantial number of people?***

Less than Significant Impact. Although it is virtually impossible to eliminate odor emission at SRWRF, there are odor control methods that can significantly reduce these odors. Existing operational odor emitting facilities at the SRWRF include sequencing batch reactors basins, aerobic digester, tertiary clarifiers, flocculation basins, influent pumping, equalization basins, biosolid drying beds and headworks. Typically, the air from these facilities would be vented to the atmosphere via a carbon filter which removes odors. Long-term odors at the existing SRWRF are caused by a variety of reduced compounds (primarily by hydrogen sulfide gas) that are emitted by both liquid and solids handling facilities. Odor control is an important part of the influent, headworks, and primary wastewater treatment processes such as the grit chamber, automated bar screens, dewatering building, active batch reactors, and aerobic digesters. Throughout the SRWRF, odor control scrubbers draw the foul air (and odors) off the flow of wastewater. The foul air is drawn into the scrubbers where it passes through carbon filters, which removes any additional foul air and odors before being released into the atmosphere. Because offensive odors rarely cause any physical harm and no requirements for their control are included in state or federal air quality regulations, the SCAQMD has no rules or standards related to odor emissions, other than its nuisance rule. Any actions related to odors are based on citizen complaints to local governments and the SCAQMD.

None of these facilities would be affected by, changed, or involved in the proposed SRWRF Rehabilitation Project. It is also noted that the SRWRF currently has the proper air quality permits from the SCAQMD with respect to plant operation, including odor control. As part of the air quality permit approval and renewal processes, the SRWRF has continued to demonstrate to the satisfaction of the SCAQMD permitting staff that the SRWRF are equipped with the best available control technology for controlling emissions and odors.

Minor odors would be generated from worker vehicles and/or equipment exhaust emissions

during construction of the proposed project. Odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of heavy-duty equipment and vehicles. Such odors are temporary and would cease to occur after construction is completed. Odor impacts would be limited to the construction equipment activities within the areas of disturbance and are less than significant.

In summary, based on the temporary and de-localized nature of odor emissions during construction and from mobile equipment, odor impacts associated with construction and operation of the proposed project would not be adverse. This impact is considered less than significant.

GREENHOUSE GAS EMISSIONS —Would the project:

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

Less than Significant Impact. Global climate change refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide, methane, nitrous oxide, and ozone. These gases, known as greenhouse gases (GHGs), allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. GHGs are emitted by both natural processes and human activities and the accumulation of GHGs in the atmosphere regulates the Earth's temperature. Emissions of GHGs in excess of natural ambient concentrations are thought to be responsible for the enhancement of the greenhouse effect and contributing to what is termed "global warming;" the trend of warming of the Earth's climate from anthropogenic activities. Unlike localized air emissions, which are a temporal issue, global warming is an ongoing global issue. As global climate change impacts are by nature cumulative, direct impacts cannot be evaluated because the impacts themselves are global rather than localized. Therefore, the analysis herein addresses cumulative impacts.

The SCAQMD established a working group to develop an interim significance threshold for GHG emissions under CEQA. The SCAQMD's recommended interim GHG significance threshold proposal (SCAQMD 2008) uses a tiered approach to determine significance. In the tiered approach, Tier 3 is expected to be the primary tier by which the SCAQMD will determine significance for projects. The Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90 percent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to a CEQA analysis.

The 90 percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the SCAQMD's Annual Emission Reporting (AER) Program, and identified a screening level of 10,000 metric tons of carbon dioxide equivalent (CO_2e)

emissions[1] per year. Accordingly this level is established as the significance threshold for the project's GHG emissions. For construction emissions, the interim guidance recommends that the emissions be amortized over 30 years and added to operational emissions, as appropriate.

GHG emissions associated with the proposed project would be confined to short-term emissions associated with construction activities, including emissions generated by stationary and mobile construction equipment, off-site trucks hauling construction materials, and worker trips. The equipment that would be used for project construction activities is already present within the County; no new emissions sources would be created by transport of construction equipment. Construction-related GHG emissions would occur during construction of the project, which would occur over an approximate 32-month period. Project-related GHG emissions were estimated using the EMFAC2014 and OFFROAD2011 emission factors. The emission factors provide CO_2 emission data and do not account for other GHG emissions such as nitrous oxide (N_2O) and methane (CH_4). However, based on the U.S. Environmental Protection Agency's (USEPA) Inventory of U.S. Greenhouse Gas Emissions and Sinks, CO_2 emissions account for approximately 99 percent of all GHG emissions from diesel fueled construction equipment (USEPA, 2008). Therefore, for the purpose of this analysis, estimated CO_2 emissions are used as a surrogate for total CO2e emissions. Construction GHG emissions are estimated to total 1,280 metric tons of CO_2 over the entire period of construction. If emissions are amortized over a 30-year period, construction GHG emissions of 43 metric tons would be negligible. Emissions would be well below the 10,000 metric ton per year significance threshold recommended by the SCAQMD, and impacts would therefore be less than significant.

Following the completion of construction activities, GHG emissions would consist of emissions associated with the operation of the SRWRF. As discussed in response (b) in the Air Quality discussion, operational emissions would be the same as existing conditions as there would be no increase in capacity at the SRWRF. A limited number of vehicle trips would be necessary for periodic maintenance of the proposed SRWRF (approximately two trips per month). As such, GHG emissions associated with vehicle trips would be negligible. Additionally, GHG emissions associated with the operation of the SRWRF would also be negligible. The proposed SRWRF also includes a standby generator, which would be tested on a monthly basis. Similar to other operational emissions, emissions associated with a monthly test of the standby generator would be negligible as the project would not increase the existing capacity at the SRWRF. For these reasons, operational impacts associated with GHG emissions would be less than significant.

As discussed, construction and operations of the proposed project would have negligible GHG emissions. Construction and operational emissions, therefore, would have a less-than-cumulatively considerable contribution to global climate change impacts, and impacts would be less than significant.

[1] The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere, and is expressed as a function of how much warming would be caused by the same mass of CO_2. For instance, methane (CH_4) has a global warming potential of 21, meaning that one gram of CH_4 traps the same amount of heat as 21 grams of CO_2.

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

Less than Significant Impact. See response to (a), above. As discussed, construction and operations of the proposed project would result in negligible GHG emissions. Passed by the California legislature in 2006, Assembly Bill 32 (AB 32; California's climate change reduction legislation) seeks to reduce GHG emissions to below 1990 levels by 2020, and is focused on the reduction of ongoing GHG emissions. Construction, by its nature, is temporary and finite in its timing. The temporary and minor emission of GHGs associated with construction of the proposed project would occur only during a short-term period, estimated to be 32 months. The proposed project would, therefore, not result in emissions that would impede or conflict with state-wide attainment of GHG emission reduction goals as described in AB 32 and Executive Order S-21-09 (to reduce GHG emissions to 1990 levels by 2020), Executive Order B-30-15 (reduce GHG emissions 40% below 1990 levels by 2030), and Executive Order B-03-05 (reduce GHG emissions 80% below 1990 levels by 2050). In addition to the fact that the proposed modifications would not conflict with AB 32 or executive orders, they also would not conflict with any other applicable plans, policies, or regulations intended to reduce GHG emissions. Impacts would be less than significant.

Attachments

Figure 1
Figure 2
Appendix A: Construction Schedule and Emissions Calculation Spreadsheets
Appendix B: General Conformity Record of Non-Applicability

LSA

LEGEND

Project Area Limits

FIGURE 1

N

0 1000 2000

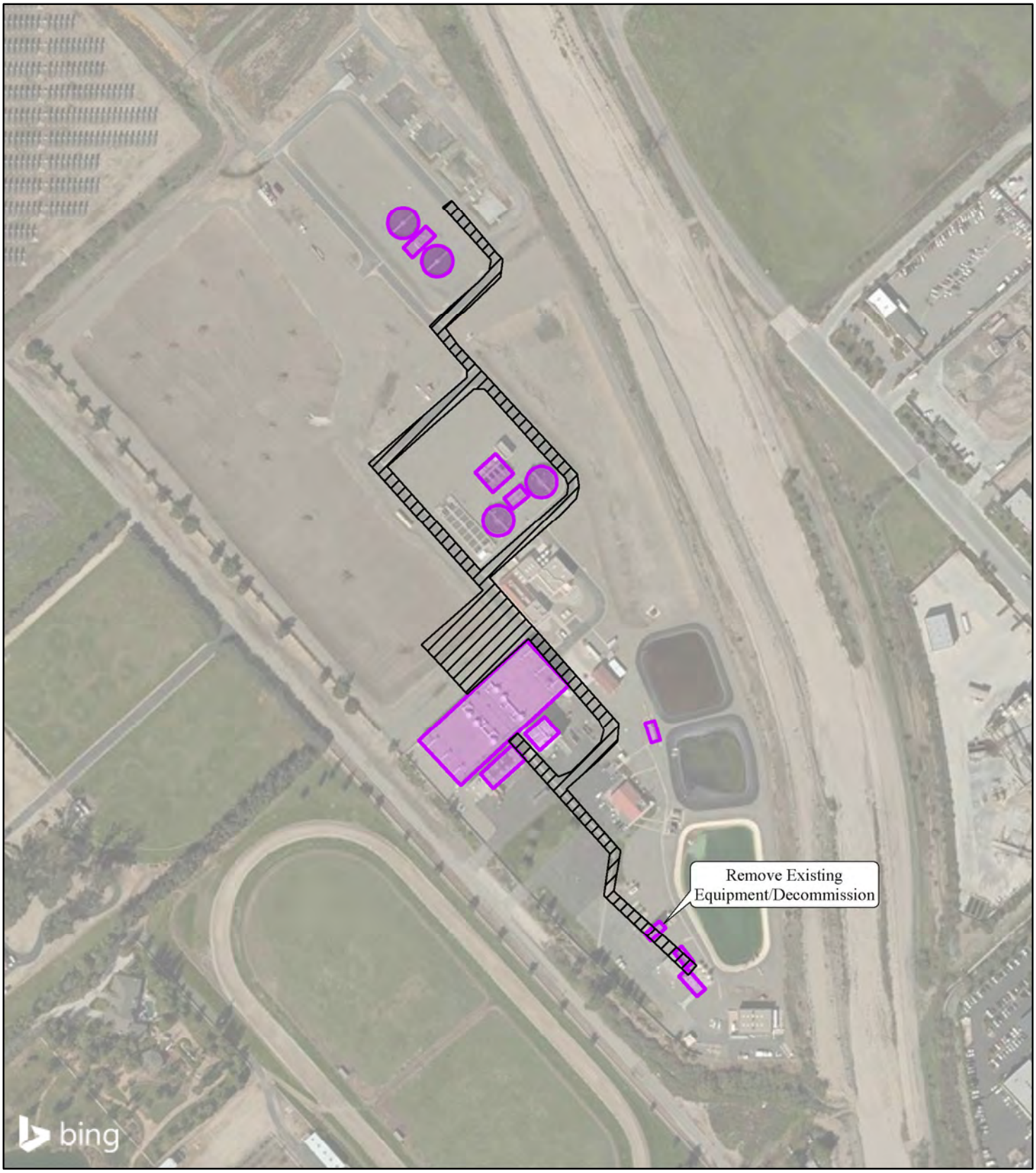
FEET

RCW1601
SRWRF Rehabilitation Project

Project Location

SOURCE: Aerial - Microsoft Corporation (2010)

I:\RCW1601\GIS\ProjLoc_aerial.mxd (4/22/2016)



LSA

LEGEND

Study Area Limits - Areas of Ground Disturbance

Rehabilitation within Existing Structures

N

0 150 300

FEET

SOURCE: Bing Maps (2015)

I:\RCW1601\GIS\SAL_Map_AQ.mxd (4/22/2016)

FIGURE 2

RCW1601
SRWRF Rehabilitation Project

Construction Activities - Areas of Ground Disturbance

APPENDIX A

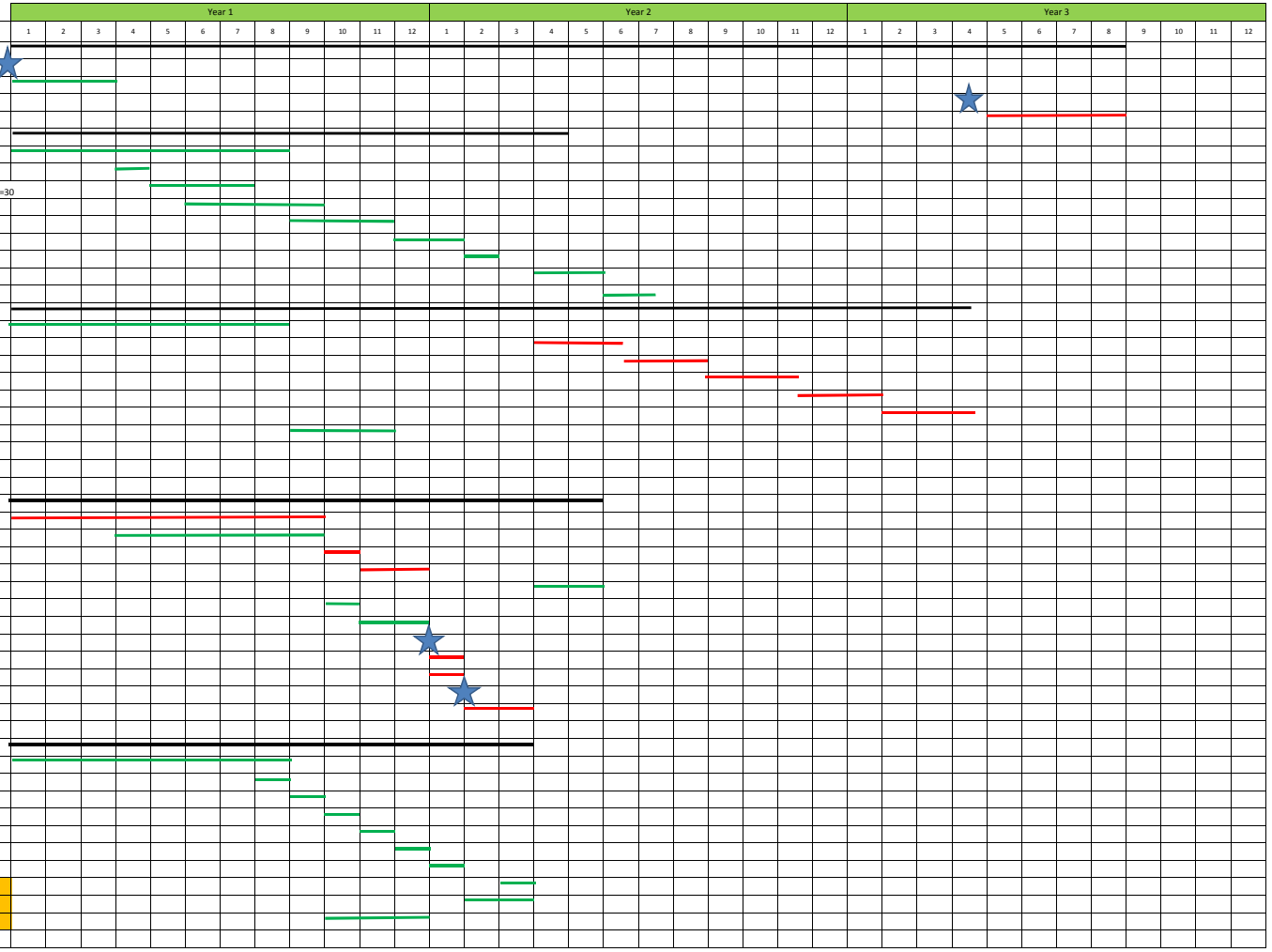
Rancho California Water District

SRWRF Rehabilitation Program

Predesign Construction Schedule

Area	Activity	Duration Cal. Days	Pred.	Succ.
	General			
1000	NTP			
1001	Mobilization	90	1000	
1100	Substantial Completion	0		
1200	Closeout	120		
	Aerobic Digester/ Solids Handling			
2001	Equipment Procurement	250	NTP	2013
2010	Site Prep	30	1001	2011
2011	UG Utilities	90	2010	012, SS=30
2012	Digester Construction	120	2011	2013
2013	Equipment Installation	90	2001	2014
2014	Electrical & Instrumentation	60	2013	2015
2015	Initial Startup & Testing	30	2014	2016
2100	Commissioning	60	4100	1100
2200	Decommission Old Digester & Solids	45	2100	
	Sequence Batch Reactors			
3001	Equipment Procurement (Blowers)	250	NTP	
3010	SBR #1	75	4100	3020
3020	SBR #2	75	3010	3030
3030	SBR #3	75	3020	3040
3040	SBR #4	75	3030	3050
3050	SBR #5	75	3040	
3100	New Influent/Effluent Piping	90		4044
	Headworks/IPS and Influent Line			
4001	Equipment Procurement	270	NTP	
4010	Dual Influent Forcement	120	1000	
4020	Prefab Bldg.	30	4001	4025
4025	Install Grit Equipment	60	4020	4041
4028	Decommission Old Grit	45	4100	
4030	HVAC Install	30	4001	4041
4040	Install Temp Bypass	60	4020	4041
4041	Bypass	0		
4042	Channel/Wetwell Repair	30	4041	4044
4043	New IPS Piping	30	4041	4044
4044	Connect Dual Influent Forcemain	0	4043	
4100	Commission Headworks/IPS	30	4044	
	Tertiary Treatment Systems			
5001	Equipment Procurement	250	NTP	
5010	Isolate/Concrete Repair Clarifier 1	30		5010
5015	Install New Scraper/Sludge Pump	30	5001	
5018	Commission Clarifier 1	30	5015	5020
5020	Isolate/Concrete Repair Clarifier 2	30	5018	5025
5025	Install New Scraper/Sludge Pump	30	5020	5028
5028	Commission Clarifier 2	30	5025	5100
5100	Connect Clarifiers to New Digester	30	5015	2100
5200	AWT Pump Station Cleanout	60		2100
5300	Chem Feed Piping	90		2014

Source: Black & Veatch 2016.



Labor Resources	Crew	No.																																					Year 1	Year 2	Year 3
Field Office		5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5					60	60	40
Mobe /Demobe	B-34N	2	2																														2						2	0	2
Temp Office / Site Utils		2		2	2																																		4	0	0
Site Prep	B-10B	6				6					6																												12	0	0
Utilities	B-11C +	6					6	6	6																														18	0	0
Digester	C-2 + 4 r	10						10	10	10	10																												40	0	0
Digester Mechanical		3									3	3	3																										9	0	0
Digester Electrical & Instrumentation		4												4	4																								4	4	0
Startup		3														3																							0	3	0
Decommission Solids Bldg	B-16	4																		4	4																		0	8	0
Site Restoration		6															6																						0	6	0
SBRs																																							0	0	0
Influent/Effluent Piping	B-12B, B	5									5	5	5																										15	0	0
SBR - Conc. Repair(3), mech (3), Elec (2)		8																8	8	8	8	8	8	8	8	8	8	8	8	8									0	72	32
Punchlist		3																													3	3	3	3					0	0	12
Site Restoration																												6	6										0	0	12
Headworks																																							0	0	0
Prefab Bldg.		4										4																											4	0	0
Grit Equip.		3											3	3																									6	0	0
HVAC		3										3																											3	0	0
Temp Bypass													5	5																									10	0	0
Channel/Wetwell Repairs	Conc, Co	6													6																								0	6	0
IPS Mech.		3													3																								0	3	0
Startup		4														4	4																						0	8	0
Decommission	B-16	4																4	4																				0	8	0
Site Restoration		6																		6																			0	6	0
Tertiary																																							0	0	0
Demo/ Repair Clarifier 1		4								4																													4	0	0
Install New Equip Clarifier 1											3																												3	0	0
Commission												4																											4	0	0
Demo/ Repair Clarifier 2													4																										4	0	0
Install New Equip Clarifier 2														3																									3	0	0
Commission															4																								0	4	0
Connect Clarifer to Digester																	3																						0	3	0
AWT PS Mech.																3	3																						0	6	0
Chem Feed Piping												3	3	3																									9	0	0
Allow for Subs Key Guys		2			2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2									20	24	8
Allow for Specialties		2						2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2									14	24	8
																																							248	**245**	**114**
Totals			7	7	9	13	13	25	25	23	36	31	32	27	26	19	25	21	21	27	21	17	17	17	17	17	17	17	23	23	8	8	10	8	0	0	0	0			

Source: Black & Veatch 2016.

	Equipment	HP	Months																																				
	Backhoe Loader, CAT 416C	78	12					1	1	1	1	1	1	1	1	1			1			1									1									
	Dozer, CAT D6	165	1					1																																
	Forklift, CAT TH	105	23							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								
	Dump Truck,Ford F-750	270	6						1	1	1	1	1	1																										
	Air Compressor	45	8							1	1	1	1	1	1	1	1																							
	Truck Crane, TEREX Stinger 70100	300	19									1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1								
	Excavator, CAT 950G	180	4										1	1	1	1																								
	Asphalt Paver, CAT AP800	110	3																1			1									1									
	12 Ton Roller, CAT 534	105	3																1			1									1									
	Water Truck, Freightliner FL 60	210	11				1	1	1	1	1	1	1	1	1	1	1																							
	Scissor Lift	Elec	14												1	1				1	1	1	1	1	1	1	1	1	1	1	1									
	Front End Loader, CAT 962	200	4										1	1	1	1																								
	Elec. Utility Truck	200	6						1	1	1		1		1	1																								
	Man Lift, JLG 800	67	25							1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				
Source: Black & Veatch 2016.																																								

CRITERIA AIR POLLUTANTS

	lbs/day					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Construction Equipment	6.60	25.98	47.89	0.09	2.05	1.85
Construction Workers Commute	1.11	2.36	9.41	0.01	0.05	0.05
Fugitive Dust					1.28	0.13
Total Maximum Daily Emissions	**7.71**	**28.35**	**57.30**	**0.11**	**3.38**	**2.02**

Source: LSA 2016

Year 1	Tons/year					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Construction Equipment	0.43	1.78	3.18	0.01	0.14	0.13
Construction Workers Commute	0.95	2.03	8.10	0.01	0.04	0.04
Fugitive Dust					0.10	0.01
Total Emissions - Year 1	**1.39**	**3.81**	**11.28**	**0.02**	**0.29**	**0.18**

Source: LSA 2016

Year 2	Tons/year					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Construction Equipment	0.21	1.01	1.56	0.00	0.08	0.07
Construction Workers Commute	0.94	2.01	8.01	0.01	0.04	0.04
Fugitive Dust					0.10	0.01
Total Emissions - Year 2	**1.16**	**3.02**	**9.56**	**0.01**	**0.22**	**0.12**

Source: LSA 2016

Year 3	Tons/year					
	ROG	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Construction Equipment	0.10	0.47	0.69	0.00	0.04	0.03
Construction Workers Commute	0.44	0.94	3.73	0.01	0.02	0.02
Fugitive Dust					0.10	0.01
Total Emissions - Year 3	**0.53**	**1.41**	**4.42**	**0.01**	**0.16**	**0.06**

Source: LSA 2016

GHG EMISSIONS

	Year 1 CO_2MTons/year	**Year 2 CO_2MTons/year**	**Year 3 CO_2MTons/year**	**Total CO_2MTons**
Construction Equipment	497	229	101	--
Construction Workers Commute	185	183	85	--
	682	412	186	**1,280**

Source: LSA 2016

Note: MTons = metric tons; CO_2e = carbon dioxide-equivalent. Adjusted Emissions Includes Pavley and the Low Carbon Fuel Standard (LCFS).

State and Federal Fuel Efficiency Improvements + Low Carbon Fuel Standard (LCFS) + Pavley I Fuel Efficiency Standards.

The State of California has adopted the Low Carbon Fuel Standard (LCFS) and Pavley I Fuel Efficiency Standards. In January 2012, the California Air Resources Board (CARB) adopted the Advanced Clean Car Program which implements the Pavley II Fuel Efficiency Standards and projects that by 2025, one in every seven new cars sold will be electric vehicles (PHEV or PEV). However, the Pavley II Advanced Clean Car Program is not included in the transportation emissions reductions and therefore reductions are conservative.

SCAB Fleet Average Emission Factors (Diesel)

2017

Air Basin	SC

			(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
Equipment	**MaxHP**	**HP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
Backhoe Loader	120	78	0.0477	0.3442	0.3216	0.0006	0.0217	51.7	0.0043
Rubber Tired Dozer	175	165	0.1763	0.8232	1.2239	0.0015	0.0692	129.5	0.0159
Forklifts	120	105	0.0287	0.2125	0.1926	0.0004	0.0128	31.2	0.0026
Dump Trucks	500	270	0.1753	0.5676	1.1034	0.0027	0.0397	272.3	0.0158
Air Compressors	50	45	0.0591	0.2209	0.1914	0.0003	0.0148	22.3	0.0053
Truck Crane	500	300	0.1262	0.4243	0.9704	0.0018	0.0351	180.1	0.0114
Excavator	250	180	0.0992	0.3354	0.6878	0.0018	0.0231	158.7	0.0090
Asphalt Paver	120	110	0.1095	0.4895	0.6606	0.0008	0.0548	69.2	0.0099
Roller	120	105	0.0736	0.3944	0.4749	0.0007	0.0378	59.0	0.0066
Water Trucks	250	200	0.0776	0.2793	0.7760	0.0009	0.0335	92.3	0.0054
Scissor Lift	elec	elec	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000
Front end Loader	250	200	0.0968	0.3506	0.6887	0.0019	0.0229	171.7	0.0087
Elec. Utility Truck	200	200	0.0776	0.2793	0.7760	0.0009	0.0335	92.3	0.0054
Man Lift	120	67	0.0368	0.2336	0.2787	0.0004	0.0194	38.1	0.0033

Source: SCAQMD 2016

Rancho California Water District

SRWRF Rehabilitation Program

Predesign Construction Schedule

	Equipment	HP	Months		Year 1												Year 2												Year 3												
					1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
	Backhoe Loader, CAT 416C	78	24					1	1	1	1	1	1	1	1	1			1			1									1										12
	Dozer, CAT D6	165	2					1																																1
	Forklift, CAT TH	105	46							1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1								23
	Dump Truck,Ford F-750	270	12						1	1	1	1	1	1																											6
	Air Compressor	45	16							1	1	1	1	1	1	1	1																							8
	Truck Crane, TEREX Stinger 70100	300	38									1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1								19
	Excavator, CAT 950G	180	8										1	1	1	1																								4
	Asphalt Paver, CAT AP800	110	6																1			1									1										3
	12 Ton Roller, CAT 534	105	6																1			1									1										3
	Water Truck, Freightliner FL 60	210	22				1	1	1	1	1	1	1	1	1	1	1																							11
	Scissor Lift	Elec	28											1	1					1	1	1	1	1	1	1	1	1	1	1										14
	Front End Loader, CAT 962	200	8										1	1	1																								4
	Elec. Utility Truck	200	12						1	1	1		1		1	1																								6
	Man Lift, JLG 800	67	50							1	1	1	1	1	1	1	1			1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		25
							1	3	4	7	7	7	10	9	10	10	5	1	4	4	4	7	4	4	4	4	4	4	4	4	7	3	1	1	1	1				139
Source: Black & Veatch 2016.																																								

Year 1	Year 2	Year 3
9	2	1
1	0	0
7	12	4
6	0	0
7	1	0
5	10	4
4	0	0
0	2	1
0	2	1
10	1	0
2	9	3
4	0	0
6	0	0
7	10	8

Maximum Daily Emission Rates (Diesel)

September 2017

Air Basin	SC

			(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)					
Equipment	**MaxHP**	**HP**	**ROG**	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**	**Qty**	**Hours/day**	Year 1	Year 2	Year 3
Backhoe Loader	120	78	0.0477	0.3442	0.3216	0.0006	0.0217	51.7	0.0043	1	8	9	2	1
Rubber Tired Dozers	175	165	0.1763	0.8232	1.2239	0.0015	0.0692	129.5	0.0159			1	0	0
Forklifts	120	105	0.0287	0.2125	0.1926	0.0004	0.0128	31.2	0.0026	1	8	7	12	4
Dump Trucks	500	270	0.1753	0.5676	1.1034	0.0027	0.0397	272.3	0.0158	1	8	6	0	0
Air Compressors	50	45	0.0591	0.2209	0.1914	0.0003	0.0148	22.3	0.0053	1	8	7	1	0
Truck Crane	500	300	0.1262	0.4243	0.9704	0.0018	0.0351	180.1	0.0114	1	8	5	10	4
Excavator	250	180	0.0992	0.3354	0.6878	0.0018	0.0231	158.7	0.0090	1	8	4	0	0
Asphalt Paver	120	110	0.1095	0.4895	0.6606	0.0008	0.0548	69.2	0.0099			0	2	1
Roller	120	105	0.0736	0.3944	0.4749	0.0007	0.0378	59.0	0.0066			0	2	1
Water Trucks	250	200	0.0776	0.2793	0.7760	0.0009	0.0335	92.3	0.0054	1	8	10	1	0
Scissor Lift	elec	elec	0.0000	0.0000	0.0000	0.0000	0.0000	0.0	0.0000			2	9	3
Front end Loader	250	200	0.0968	0.3506	0.6887	0.0019	0.0229	171.7	0.0087	1	8	4	0	0
Elec. Utility Truck	200	200	0.0776	0.2793	0.7760	0.0009	0.0335	92.3	0.0054	1	8	6	0	0
Man Lift	120	67	0.0368	0.2336	0.2787	0.0004	0.0194	38.1	0.0033	1	8	7	10	8

Source: SCAQMD 2016

Total Daily Construction Equipment Emissions

(lbs/dy)	(lbs/dy)	(lbs/dy)	(lbs/dy)	(lbs/dy)	(lbs/dy)	(lbs/dy)
ROG	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
6.60	25.98	47.89	0.09	2.05	8,885.38	0.57

Source: LSA 2016

Total Annual Construction Equipment Emissions - Year 1

(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
ROG	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
0.04	0.26	0.24	0.00	0.02	38.79	0.00
0.01	0.07	0.10	0.00	0.01	10.79	0.00
0.02	0.12	0.11	0.00	0.01	18.21	0.00
0.09	0.28	0.55	0.00	0.02	136.15	0.01
0.03	0.13	0.11	0.00	0.01	12.99	0.00
0.05	0.18	0.40	0.00	0.01	75.03	0.00
0.03	0.11	0.23	0.00	0.01	52.89	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
0.06	0.23	0.65	0.00	0.03	76.87	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.12	0.23	0.00	0.01	57.24	0.00
0.04	0.14	0.39	0.00	0.02	46.12	0.00
0.02	0.14	0.16	0.00	0.01	22.21	0.00
0.43	**1.78**	**3.18**	**0.01**	**0.14**	**547.28**	**0.04**

Source: LSA 2016

Total Annual Construction Equipment Emissions - Year 2

(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
ROG	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
0.01	0.06	0.05	0.00	0.00	8.62	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.21	0.19	0.00	0.01	31.22	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	0.02	0.02	0.00	0.00	1.86	0.00
0.11	0.35	0.81	0.00	0.03	150.06	0.01
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.02	0.08	0.11	0.00	0.01	11.53	0.00
0.01	0.07	0.08	0.00	0.01	9.83	0.00
0.01	0.02	0.06	0.00	0.00	7.69	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	0.00	0.00	0.00	0.00	0.00	0.00
0.03	0.19	0.23	0.00	0.02	31.72	0.00
0.21	**1.01**	**1.56**	**0.00**	**0.08**	**252.53**	**0.02**

Source: LSA 2016

Total Annual Construction Equipment Emissions - Year 3

(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)	(tons/year)
ROG	**CO**	**NOX**	**SOX**	**PM**	**CO2**	**CH4**
0.00	0.03	0.03	0.00	0.00	4.31	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.07	0.06	0.00	0.00	10.41	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
0.04	0.14	0.32	0.00	0.01	60.02	0.00
0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.01	0.04	0.06	0.00	0.00	5.77	0.00
0.01	0.03	0.04	0.00	0.00	4.91	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	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
0.02	0.16	0.19	0.00	0.01	25.38	0.00
0.10	**0.47**	**0.69**	**0.00**	**0.04**	**110.80**	**0.01**

Source: LSA 2016

EMFAC2014 (v1.0.7) Emissions Factors for motor vehicles (workers commute trips)

Region Type: County

Region: Riverside

Calendar Year: 2017

Season: Annual

Vehicle Classification: EMFAC2011 Categories

Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Year	Population	VMT	Trips	ROG_TOTAL	NOx_TOTEX	CO_TOTEX	SOx_TOTEX	PM10_TOTEX	PM2_5_TOTEX	CO2_TOTEX	Fuel_Consumpt
Riverside	**2017**	6,170,557	205,667,884	38,913,601	95.03869513	202.5135847	806.6863488	1.163714407	4.210242245	3.999946394	116940.9198	12302.76405
				tons/year	32978.42721	70272.21391	279920.163	403.8088991	1460.954059	1387.981399	36812193.6	MT/year
				lbs/day	190077.3903	405027.1695	1613372.698	2327.428813	8420.48449	7999.892788	233881839.6	
				lbs/VMT/day	0.000924196	0.001969326	0.007844553	1.13164E-05	4.09421E-05	3.88971E-05	0.178988537	MT/VMT/year

Source: ARB 2016

Emissions Rates

Construction	Population	VMT	Trips	ROG	NOx	CO	Sox	PM10	PM2.5	CO2
Maximum Daily (lbs/day)	36	1,200	227	1.11	2.36	9.41	0.01	0.05	0.05	214.77

Construction		Population	VMT	Trips	ROG	NOx	CO	Sox	PM10	PM2.5	CO2
Annual Emissions (tons/year)	Year 1	248	8,266	1,564	0.95	2.03	8.10	0.01	0.04	0.04	184.91
Annual Emissions (tons/year)	Year 2	245	8,166	1,545	0.94	2.01	8.01	0.01	0.04	0.04	182.67
Annual Emissions (tons/year)	Year 3	114	3,800	719	0.44	0.94	3.73	0.01	0.02	0.02	85.00
Source: LSA 2016											

On Site Equipment and Vehicle Fugitive Dust PM10 Emissions - Unpaved Roads

Vehicle Activity

Source	Quantity	Miles per round trip	Load Weight (tons)	amount of work required			VMT		
				Hourly	Daily	Annual	Hourly	Daily	Annual
Backhoe Loader	1	0.5	12.5	8	21	160	0.32	0.83	6.40
Rubber Tired Dozers	1	0.5	12.5	8	21	160	0.32	0.83	6.40
Forklifts	1	0.5	12.5	8	21	160	0.32	0.83	6.40
Dump Trucks	1	0.5	100	8	21	160	0.04	0.10	0.80
Water Truck	1	See operating schedule in Delivery Truck and Employee Vehicle section. VMT calculated from hours of operation and speed of vehicle (10 mph).					1	10	2,007
Service Truck	1						1.5	15	3,093
Pick-up Trucks - small	18						1	10	1,448
Pick-up Trucks - large	18						0.5	5	987
Elec. Utility Truck	1						0.4	4	731

Notes:

1. 50 percent of time small vehicles are on paved surfaces.

Emission Factors

Source	k (PM10)	k (PM2.5)	s	W	% Control Efficiency	Moisture	PM10 EF lb/VMT	PM2.5 EF lb/VMT
Backhoe Loader	1.5	0.15	7.4	230	98	5.7	0.137	0.014
Rubber Tired Dozers	1.5	0.15	7.4	122	98	5.7	0.076	0.008
Forklifts	1.5	0.15	7.4	63	98	5.7	0.076	0.008
Dump Trucks	1.5	0.15	7.4	63	98	5.7	0.076	0.008
Water Trucks	1.5	0.15	7.4	23	98	5.7	0.048	0.005
Service Trucks	1.5	0.15	7.4	2.5	98	5.7	0.018	0.002
Pick-up Trucks - small	1.5	0.15	7.4	1.5	98	5.7	0.014	0.001
Pick-up Trucks - large	1.5	0.15	7.4	2	98	5.7	0.014	0.001
Elec. Utility Truck	1.5	0.15	7.4	2.5	98	5.7	0.018	0.002

Notes:

1. Average silt content and mositure content for quarry roads with routine on-site watering.

2. The vehicle weights are based on the average weight of unloaded and loaded weights for haul trucks and water truck.
The other vehicle weights are based on the estimated Gross Mean Vehicle Weight provided by the manufacturers.
The following table summarizes the weight basis:

Vehicle Type	Advertised Empty GMVW (tons)	Load Weight (tons)	Avg Weight (tons)	Source
Backhoe Loader	56.5	12.5	63	Caterpillar advertized weights and capacities
Rubber Tired Dozers	56.5	12.5	63	Caterpillar advertized weights and capacities
Forklifts	56.5	12.5	63	Caterpillar advertized weights and capacities
Dump Trucks	180	100	230	Caterpillar advertized weights and capacities
Water Trucks	15	15	23	Caterpillar advertized weights and capacities
Service Trucks	2.5	n/a	2.5	Manufacturer advertized weights for vehicle class
Pick-up Trucks - small	1.5	n/a	1.5	Manufacturer advertized weights for vehicle class
Pick-up Trucks - large	2	n/a	2	Manufacturer advertized weights for vehicle class
Elec. Utility Truck	2.5	n/a	2.5	Manufacturer advertized weights for vehicle class

3. (a) Control efficiency factor from Figure 13.2.2-2, AP-42, 5th Edition, Section 13.2.2, Unpaved Roads, November 2006. Uncontrolled moisture content was assumed to be 1.0% and control moisture 5.7% which gives an M of 5.7, based on extrapolation of the curve, (and control efficiency of 99.7%). Top be conservative, used 98% control. The uncontrolled road moisture was based on Fugitive Particulate Matter Emissions Final Draft Report, U.S. Environmental Protection Agency, Research Triangle Park, NC, EPA Contract No. 68-D2-0159, Assignment 4-06, January 1997, which reported a uncontrolled moisture content of 0.52% on unpaved roads. A value of 1.0% was selected which result in a more conservative estimate of control efficiency.

3. (b) Control efficiency can be calculated using the Mojave Desert AQMD/Antelope Valley APCD Emission Inventory Guidance on Mineral Handling and Processing Industries.
Ct = 100-(0.0012*A*D*T/I, where I = watering intensity, 0.759 gal/yd2, A = Class A pan evaporation, 55 in (see CA NOAA map), D=hourly Traffic Rate, 23 vehicles/hr,
T = time between water application, 1 application per hour, 1 hr, Cf = 98%.
Emission Factor Source: AP-42 5th edition, Section 13.2.2, Unpaved Roads, Rev. November 2006.

$E=k(s/12)^a(W/3)^b$

E=emisison factor in lb/VMT
k = particle size multiplier
s = silt contect of road surface materials,
W = mean vehicle weight, ton

a = 0.9 for PM10
b = 0.45 for PM10
a = 0.9 for PM2.5
b = 0.45 for PM2.5

PM10 and PM2.5 Emission Rates - Unpaved Roads

Source	PM10 Emissions			PM2.5 Emissions			
	Hourly lb/hr	Daily lb/day	Annual TPY	Hourly lb/hr	Daily lb/day	Annual TPY	Source Type
Backhoe Loader	0.04	0.11	0.00	0.00	0.01	0.000	Area
Rubber Tired Dozers	0.02	0.06	0.00	0.00	0.01	0.000	Area
Forklifts	0.02	0.06	0.00	0.00	0.01	0.000	Area
Dump Trucks	0.00	0.01	0.00	0.00	0.00	0.000	Area
Water Truck	0.05	0.48	0.05	0.01	0.05	0.005	Area
Subtotal - Plant Area	**0.14**	**0.73**	**0.05**	**0.01**	**0.08**	**0.005**	
Service Trucks	0.03	0.27	0.03	0.00	0.03	0.003	Area
Pick-up Trucks - small	0.01	0.14	0.01	0.00	0.01	0.001	Area
Pick-up Trucks - large	0.01	0.07	0.01	0.00	0.01	0.000	Area
Elec. Utility Truck	0.01	0.07	0.01	0.00	0.01	0.001	Area
Subtotal - small vehicles	**0.06**	**0.55**	**0.05**	**0.01**	**0.05**	**0.005**	
Total	**0.20**	**1.28**	**0.10**	**0.02**	**0.13**	**0.01**	

Example Calculation: Loader 1 PM10 = 52.8 VMT/day x 0.076 lb/VMT = 4.01 lbs/day .

* Equipment locations can vary and are therefore based on the general plant location where it is anticipated to spend the majority of the time.

APPENDIX B

Clean Air Act (CAA) General Conformity Analysis for Record of Non-Applicability

Issue 1. The General Conformity Analysis is important for Federal agencies because it contains a prohibitory statute, and the issue is more critical because the proposed project is located in the South Coast Air Basin (Basin). The Basin is classified as "extreme" nonattainment for 8-hour ozone and "serious" nonattainment for $PM_{2.5}$.

The Clean Air Act Amendments of 1990 included a provision (Section 176(c)) prohibiting any Federal agency from supporting or approving any activity that does not conform to an applicable State Implementation Plan (SIP). This is known as the General Conformity Rule, and the Environmental Protection Agency (EPA) and the Department of the Interior are required to demonstrate that the proposed project conforms to the SIP.

The General Conformity rule can be viewed as containing three major parts, each subsequently briefly described below:

- Applicability
- Procedure
- Analysis

For purposes of applicability, the general conformity rule covers direct and indirect emissions of criteria pollutants or their precursors that are caused by a Federal action, are reasonably foreseeable, and can be practicably be controlled by the Federal agency through its continuing program responsibility. The rule generally applies to Federal actions which occur in nonattainment or maintenance areas except: 1) those covered by the transportation conformity rule; 2) actions with associated emission below specified *de minimis* levels; and 3) certain other action which are exempt or presumed to conform.

The rule also establishes procedural requirements. Federal agencies must make their conformity determinations available to applicable air quality regulatory agencies and to the public for review.

The conformity determination analysis examines the impacts of emissions from the Federal action. The rule provides several options to satisfy air quality criteria and requires the Federal action to also meet any applicable SIP requirements and emission milestones. Each Federal agency must determine that any actions covered by the rule conform to the applicable SIP before the action is taken.

Determining Applicability of Conformity Review

Issue 2. Under the conformity applicability procedures defined in the general conformity rule, the total of direct and indirect emissions means the sum of direct and indirect emission increases and decreases caused by the Federal action; i.e., the "net" emissions.

If the proposed action will cause an identifiable change in emissions, the next step is to quantify the change in emissions (net) and compare that net emission to the *de minimis* threshold for the nonattainment area. Because the South Coast Air Basin is in extreme nonattainment, it has a very restrictive threshold, that proposed projects must have net emissions below a *de minimis* level. Table 1 below shows the *de minimis* levels for these nonattainment pollutants in the South Coast Air Basin.

Table 1. De Minimis Levels for Determination of Applicability of General Conformity Rule

Air Basin	De Minimis Levels, tons/year ROG	NO_x	$PM_{10/2.5}$
South Coast Air Basin	10	10	100

Notes: ROG and NOx are ozone (O_3) precursors. California defines Volatile Organic Compounds as ROG.
Source: 40 CFR 51.853 and 93.153.

If net emissions of criteria pollutants associated with the proposed action are below the *de minimis* levels, and they are not regionally significant (i.e., greater than 10 percent of the air basin's emissions budget), then the proposed action is exempt from the requirements of a full conformity determination under the General Conformity Rule.

Table 2 shows the summary of the net emissions for each pollutant for each analysis year.

Table 2. Emissions from Construction Activities (Unmitigated)

	tons/year			
	ROG	NO_X	CO	$PM_{10/2.5}$
Construction Year 1	1.39	3.81	11.28	0.29
Construction Year 2	1.16	3.02	9.56	0.22
Construction Year 3	0.53	1.41	4.42	0.16
Threshold	*10*	*10*	*N/A*	*100*

Source: LSA 2016

As indicated in Table 2, emissions from construction are anticipated to be below the 10 tons per year for ROG and NOx, and below the 100 tons per year for PM_{10} and $PM_{2.5}$. Because emissions associated with the proposed federal action are less than *de minimis* for ROG, $NO_{X,}$ and PM, the proposed action would conform with the SIP and no further analysis is required for these pollutants.

Implementation of the proposed action will not adversely affect the attainment of the SIP. Pursuant to Section 176(c) of the Clean Air Act, as amended by the 1990 amendments; the General Conformity Rule at 40 CFR Parts 51 and 93; the air quality analysis establishes that the emissions associated with the proposed action are below the *de minimis* levels and are not regionally significant because they do not exceed 10% of the South Coast Air Basin's total emission inventory for any criteria pollutants. Consequently, the proposed action is exempt from the conformity determination requirement of the General Conformity Rule.