

# APPENDIX A

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## Scoping Summary

### 1. Introduction

The Great Basin Unified Air Pollution Control District (GBUAPCD) formally began the process of determining the scope of issues to be evaluated in the Supplemental Environmental Impact Report (SEIR) (a process called “scoping”) when it issued a Notice of Preparation (NOP) of an SEIR for the Casa Diablo IV Geothermal Power Plant Project (Project) on February 26, 2020.

The NOP initiated agency consultation about the scope and content of information to be analyzed in the SEIR and invited early public input about potential environmental concerns (Pub. Res. Code Section 21080.4(a); CEQA Guidelines Sections 15082(b), 15083). CEQA Guidelines Section 15083 provides that a “Lead Agency may...consult directly with any person...it believes will be concerned with the environmental effects of the project.” Scoping is the process of early consultation with the affected agencies and public prior to completion of a Draft SEIR. Section 15083(a) states that scoping can be “helpful to agencies in identifying the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in an EIR and in eliminating from detailed study issues found not to be important.” Scoping is an effective way to bring together and consider the concerns of affected State, regional, and local agencies, the project proponent, and other interested persons (CEQA Guidelines Section 15083(b)).

This Scoping Summary provides an overview summarizes the comments provided by agencies during the 30-day scoping period, which closed on March 27, 2020. The GBUAPCD will use scoping comments as a tool to ensure the preparation of a comprehensive SEIR tailored to agency concerns. Under CEQA Guidelines Section 15234(d), which defines the scope of what a Lead Agency is to consider in the event of a remand, the analysis of all potential environmental effects of the Project will not be revisited in the SEIR. Instead, the SEIR will inform the public and local officials in the planning and decision-making process regarding two potential and additional mitigation to address fugitive n-pentane emissions from the plant: (1) a stronger leak detection and repair (LDAR) program, and (2) the additional use of leakless or low-leak technology. Therefore, pursuant to CEQA Guidelines Section 15082, all public comments that address these issues will be considered in the SEIR process.<sup>1</sup>

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<sup>1</sup> Comments not within the scope of CEQA will not be addressed through the CEQA process.

## 2. Scoping Comments

The GBUAPCD received four sets of comments during the public comment period, and one set of comments after the public comment period concluded. Copies of the comments are provided as attachments to this Scoping Summary. Commenting parties are listed in **Table 1** and summaries of the issues identified by the commenters are provided in Section 2.1, *Issues to be Considered in the SEIR Under CEQA*, and Section 2.2, *Issues Not Analyzed in the SEIR Under CEQA*.

**TABLE 1**  
**PARTIES THAT SUBMITTED SCOPING COMMENTS**

Agency/Group	Name, Title	Received Date
Department of Toxic Substances Control, Site Mitigation and Restoration Program	Gavin McCreary, Project Manager, Site Evaluation and Remediation Unit	April 16, 2020
Lahontan Regional Water Quality Control Board	Jeff Fitzsimmons, PG Engineering Geologist; and Tom Browne, PhD, PE Water Resources Control Engineer	March 27, 2020
Mono County Local Agency Formation Commission	Gerry Le Francois, Executive Director	March 26, 2020
Native American Heritage Commission	Nancy Gonzalez-Lopez, Staff Services Analyst	February 26, 2020
Town of Mammoth Lakes, Community and Economic Development Department, Planning Division	Gina Montecallo, Assistant Planner	March 27, 2020

### 2.1 Issues to be Considered in the SEIR under CEQA

Issues that were identified by the Lahontan Regional Water Quality Control Board (LRWQCB) and the Town of Mammoth Lakes, Community and Economic Development Department, Planning Division that will be considered in the SEIR under CEQA are described below.

#### Lahontan Regional Water Quality Control Board

The LRWQCB requested that the SEIR identify and list the specific mitigation measures that will be implemented to prevent leaks of the working fluid to the environment. The mitigation measures should include procedures to identify and quantify n-pentane losses from the process, including both vapor and aqueous phase.

#### Response to Comment:

The SEIR identifies and evaluates the feasibility of specific mitigation measures identified in the Court of Appeal's decision that may reduce or prevent fugitive leaks of the working fluid in its vapor phase to the environment. Analysis of leaks in the aqueous phase into the environment is outside the scope of the SEIR.

## **Town of Mammoth Lakes, Community and Economic Development Department, Planning Division**

The Town of Mammoth Lakes, Community and Economic Development Department, Planning Division requested that the SEIR demonstrate the effectiveness of the proposed mitigation measures for reducing the Project's fugitive ROG emissions.

### **Response to Comment:**

The SEIR presents, discusses, and analyzes the feasibility of specific mitigation measures for reducing the Project's fugitive ROG emissions, including their effectiveness.

## **2.2 Issues Not Analyzed in the SEIR under CEQA**

Per the Court of Appeal's directives, the SEIR addresses two potential and additional mitigation to address fugitive n-pentane emissions from the plant: (1) a stronger leak detection and repair (LDAR) program, and (2) the additional use of leakless or low-leak technology. The following agency comments that do not address these issues are considered to be outside the scope of the SEIR, and will not be considered in the SEIR process. Issues outside the SEIR scope and included in this summary are acknowledged so that they may be considered as part of non-CEQA decision-making process.

## **Department of Toxic Substances Control, Site Mitigation and Restoration Program**

The Department of Toxic Substance Control (DTSC) recommended that a number of issues related to hazards and hazardous materials be addressed in the SEIR, including:

- The potential for historic or future activities to release hazardous wastes/substances on the Project site;
- The need to collect soil samples for aerially deposited lead prior to performing any intrusive activities;
- Proper investigation for mine waste should be discussed;
- Surveys should be conducted for the presence of lead-based paints or products, mercury, asbestos containing materials, and polychlorinated biphenyl caulk;
- Sampling should be conducted to ensure that the imported soil is free of contamination; and
- Current and former agricultural lands should be evaluated in accordance with DTSC's 2008 Interim Guidance for Sampling Agricultural Properties (Third Revision).

## **Lahontan Regional Water Quality Control Board**

The LRWQCB recommended that a number of issues related to contamination of geothermal resources and groundwater be addressed in the SEIR, including:

- The presence of isobutane in fumaroles and hot springs reported by Evans, et al (2004) in the Mammoth Geothermal Complex area must be considered in the environmental analysis, particularly the fate and transport of working fluids in the subsurface.
- The SEIR must identify and list the specific mitigation measures that will be implemented to prevent leaks of the working fluid to the environment. The mitigation measures should include a monitoring program to monitor the geothermal resource for n-pentane pre- and post-injection; and a monitoring program that includes an adequate number of groundwater monitoring wells to ensure the earliest detections of n-pentane in the shallow water aquifer.
- The SEIR must identify all potential working fluids that may be used for the Casa Diablo IV Project and include an analysis of the potential impacts and hazards that these working fluids pose to all environment resources. Mitigation measures must be included in the SEIR to reduce all potential impacts to a less than significant level.
- Water Board staff request the opportunity to review and approve any contingency plans that address the containment and cleanup of any spills and/or discharges to the ground, surface water, and/or groundwater, as these spills and/or discharges have the potential to impact water quality.

### **Mono County Local Agency Formation Commission**

Mono County Local Agency Formation Commission commented that if use of reclaimed water is considered in the future, the approval of using reclaimed water being supplied by the Mono County Water District outside of their district boundary would require Local Agency Formation Commission approval.

### **Native American Heritage Commission**

The Native American Heritage Commission provided comments that summarized CEQA and NEPA legal requirements relative to tribal cultural resources and consultations, including compliance with Assembly Bill 52 and Senate Bill 18.

### **Town of Mammoth Lakes, Community and Economic Development Department, Planning Division**

The Town of Mammoth Lakes, Community and Economic Development Department, Planning Division requested that the SEIR address:

- Analysis of exposed pipes for the event of a pipe break or crack that could cause super-heated steam or liquid to escape.
- Analysis of options that limit the time period between drilling, construction, and up until capping of the well head so that emissions are minimized.
- List all potential emissions associated with geothermal areas.

### **3. Consideration of Issues Raised in Scoping Process**

A primary purpose of this Scoping Summary is to document the process of soliciting and identifying comments from agencies and the public. The scoping process provides the means to determine those issues that interested participants consider to be the principal areas for study and analysis. Every issue that has been raised during scoping that falls within the scope of this SEIR and CEQA as discussed above, will be addressed and/or be considered in the SEIR. Issues raised that fall outside the scope of this SEIR are acknowledged and included in this summary so that they may be considered as part of the non-CEQA decision-making processes.

## **APPENDIX B**

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# Feasibility Analysis of Available Equipment Leak Mitigation Measures: Low-Emissions and Leakless Design Technologies

# CASA DIABLO IV GEOTHERMAL PROJECT

## Feasibility Analysis of Available Equipment Leak Mitigation Measures: Low-Emissions and Leakless Design Technologies

Directed to:

Ann Logan, Great Basin Unified Air Pollution Control District

July 2020



# Feasibility Analysis of Available Equipment Leak Mitigation Measures: Low-Emissions and Leakless Design Technologies

Directed to:

Ann Logan  
Great Basin Unified Air Pollution Control District

This document has been prepared by SLR International Corporation (SLR). The material and data in this report were prepared under the supervision and direction of the undersigned.



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# CONTENTS

<b>ACRONYMS</b> .....	<b>1</b>
<b>SUMMARY</b> .....	<b>2</b>
<b>1. PROCESS AND EQUIPMENT DESCRIPTION</b> .....	<b>5</b>
1.1 Binary Process Overview .....	5
1.2 Motive Fluid System Process Equipment Description .....	5
1.2.1 Rotating Equipment Seal Systems .....	5
1.2.2 Valves .....	6
1.2.3 Piping Connections .....	6
1.2.4 Pressure Relief Valves .....	6
1.2.5 Diaphragm Pumps.....	7
<b>2. REVIEW OF STANDARDS AND PRACTICES FOR MINIMIZING EQUIPMENT LEAKS</b> .....	<b>8</b>
2.1 Equipment Design Standards Review .....	8
2.1.1 API Design Standards .....	8
2.2 Regulatory Standards Review .....	11
2.2.1 Leak Detection and Repair.....	11
2.3 Alternative Design Practices Review .....	13
2.3.1 Rotary Valves Versus Sliding Stem Valves .....	13
2.3.2 Graphite Packing Systems.....	14
2.3.3 Sealless Centrifugal Pumps .....	14
2.3.4 Diaphragm Pumps.....	15
2.3.5 Diaphragm Valves .....	15
2.3.6 Bellows Valves .....	16
2.3.7 Leakless Versus Flanged Connections.....	17
<b>3. Comparison of Proposed Process with Existing Binary Plants</b> .....	<b>19</b>
<b>4. FEASIBILITY ANALYSIS</b> .....	<b>20</b>
4.1 Demonstration of Infeasibility of Sealless Centrifugal Pumps .....	20

4.2	Demonstration of Infeasibility of Diaphragm Pumps for Motive Fluid Circulation .....	21
4.3	Demonstration of Infeasibility of Diaphragm Valves .....	21
4.4	Demonstration of Infeasibility of Bellows Valves .....	22
4.4.1	Flow Control Valves .....	22
4.4.2	Manually Operated Gate Valves .....	22
4.5	Leakless Connections .....	23
4.6	Feasibility of Implementing More Stringent LDAR Work Practices .....	24
<b>5.</b>	<b>CONCLUSIONS .....</b>	<b>26</b>
<b>6.</b>	<b>REFERENCES .....</b>	<b>27</b>

## APPENDICES

Appendix A Author’s Resume

## ACRONYMS

ANSI	American National Standards Institute, Inc.
API	American Petroleum Institute
ASME	American Society of Mechanical Engineers
C	Celsius (degrees)
CAA	Clean Air Act
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CMP	canned motor drive
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
EPA	United States Environmental Protection Agency
F	Fahrenheit (degrees)
gpm	gallons per minute
HAP	hazardous air pollutant
hr	hour
IR	infrared
ISO	International Organization for Standardization
kg	kilogram
kPa	kilopascals
LDAR	leak detection and repair
MAWP	maximum allowable working pressure
MDP	magnetic drive pump
MSS	Manufacturers Standardization Society of the Valve and Fittings Industry, Inc.
n-pentane	normal-pentane
NESHAP	National Emission Standards for Hazardous Air Pollutants
NPS	nominal pipe size
NSPS	New Source Performance Standards
OEC	Ormat Energy Converter
OGI	optical gas imaging
PD	positive displacement
ppm	parts per million
ppmv	parts per million, volume basis
PRV	pressure relief valve
psi	pounds per square inch pressure
psig	pounds per square inch gauge pressure
ROG	reactive organic gases
SEIR	Supplemental Environmental Impact Report
SOCMI	synthetic organic chemical manufacturing industry
SV	screening value (ppmv)
TOC	total organic carbon
TOG	total organic gases
VHAP	volatile HAP
VOC	volatile organic compound

## SUMMARY

Ormat Nevada Inc. (Ormat) proposes to build the Casa Diablo IV Geothermal Power Plant (Project) consisting of two Ormat Energy Converter (OEC) binary generating units. The Final Joint Environmental Impact Statement/Environmental Impact Report (EIS/EIR) for the Project was certified by the Great Basin Unified Air Pollution Control District (GBUAPCD or “the District”) on July 18, 2014. The District is the lead agency. A Supplemental (SEIR) addressing additions and changes to the Final EIS/EIR will be considered for certification by the District. The SEIR is focused on the feasibility of implementing additional measures beyond Ormat’s standard process design, as generally described in the EIS/EIR, to mitigate fugitive emissions of “motive fluid” from pump seals, valves and other equipment composing the closed-loop motive fluid system within the OEC. Motive fluid will be composed of normal-pentane (n-pentane), a low-boiling point hydrocarbon (Great Basin Unified Air Pollution Control District, et al., 2013). The motive fluid is a regulated reactive organic gas (ROG) and volatile organic compound (VOC), but n-pentane is not classified as a regulated air toxic compound in California and is not classified as a hazardous air pollutant (HAP) under the federal Clean Air Act (CAA).

SLR International Corporation (SLR) was retained to evaluate the feasibility of implementing leakless and low-leak fugitive emissions mitigation measures as may be applicable to certain equipment within the motive fluid system. This report will supplement the SEIR for the Project to be considered for certification by the District.

SLR reviewed current codes, standards and specifications for design and best engineering practices pertaining to specific equipment used in the motive fluid system, primarily including rotating equipment (turbines and pumps) seal systems, rotational valves (ball valves and butterfly valves) and gate valves.

SLR reviewed the proposed motive fluid process design, as generally described in the EIS/EIR and based on detailed information provided by Ormat, including process flow diagrams and piping and instrumentation diagrams. SLR identified specific types of equipment included in Ormat’s design for the Project, including rotating equipment (turbines and centrifugal pumps), valves and connectors (screwed, flanged or welded). SLR then assessed engineering design measures already incorporated into Ormat’s standard design that are intended to reduce fugitive emissions from equipment failure and leaks. Finally, SLR evaluated the feasibility of implementing additional mitigation measures to further reduce fugitive emissions. Additional mitigation measures would include feasible measures not already included in the project design.

SLR found that Ormat’s standard design package includes reliable equipment meeting best engineering codes and standards to reduce the potential for equipment failure and leaks that would result in emissions of n-pentane. SLR also found that many of Ormat’s design measures that result in reduced fugitive emissions were not explicitly articulated in the final EIS/EIR. SLR has listed equipment used in Ormat’s standard engineering package intended to maximize reliability and mechanical integrity, while reducing the potential for leaks. The standard design package described in Section 1 provides the baseline for SLR’s review of the feasibility of implementing additional mitigation measures.

SLR's evaluation of mitigation measures focused on the feasibility of using certain so called "leakless" and "low-leak" technologies, including: "leakless" bellows valves and diaphragm valves; and "sealless" pumps, including diaphragm pumps, canned motor pumps (CMPs) and magnetic drive pumps (MDPs). SLR listed available fugitive emission mitigation technologies for each equipment type and application to the process and eliminated technically infeasible options. For example, some technologies are not suitable for certain process conditions such as high temperature, high flowrate or certain fluid types.

For turbine and centrifugal pump seal systems, which represent the highest potential for fugitive emissions of any equipment within the motive fluid system, SLR finds that the double mechanical seal and barrier fluid systems used by Ormat represent the best available technology for mitigating leaks. Sealless pumps such as magnetic drive and canned motor pumps are not available in the size and capacity needed and are therefore technically infeasible for the motive fluid system.

The motive fluid system design includes numerous quarter-turn rotational butterfly valves used for process flow control. Butterfly valves inherently have a low pressure drop across the valve. A low pressure drop is critical to avoid condensation of motive fluid to liquid before passing through the turbine. Furthermore, rotational butterfly valves inherently less subject to stem seal degradation than linear sliding stem control valve packing systems. We find that the rotational butterfly valves proposed by Ormat for motive fluid flow control meet API engineering standards and represent best engineering practice. Bellows sealed valves are designed exclusively for linear valve stem designs (globe valves and gate valves) and cannot be used for rotational valve designs such as butterfly valves and ball valves. Rotational butterfly valves achieve the required control valve function within the motive fluid process – tight flow control with minimum pressure drop. Linear sliding stem valves (globe valves and gate valves) and diaphragm valve designs do not meet the functional design of the motive fluid system and are not feasible.

Manual gate valves equipped with graphite packing will be used for process isolation to facilitate removal of critical equipment for replacement and repair. The gate valves are open during normal operations. In conjunction with butterfly valves, the gate valves provide a double block and bleed system during process isolation to eliminate or minimize leakage. Bellows are technically feasible for some gate valve applications and commercially available for some pipe sizes, but bellows gate valves are not available for all pipe sizes within the motive fluid system. In addition, we find that the additional measure of installing bellows-sealed gate valves does not reduce the potential for fugitive emissions beyond that achieved using graphite packing systems combined with routine leak detection and repair (LDAR) work practices. SLR finds that bellows sealed valves are not available in all of the sizes required for use in the motive fluid system and are not otherwise feasible for the isolation valves.

Ormat has to the greatest extent feasible used welded connections for piping and fittings and minimized flanged and screwed connectors in its process design. For technical and safety reasons, it is not possible to completely eliminate flanged and screwed connections. Some critical valves and components must be connected using flanges to facilitate safe and efficient removal for replacement or repair purposes. Equipment components installed using welded connections must be installed and removed for repair or replacement using "hot work," including cutting, welding, and brazing. Hot work on process components in n-pentane service poses an elevated risk of fire and explosion due to the potential for flammable motive fluid leaks. In addition, removing a welded valve for repair or replacement involves more risk for n-pentane leaks than from a flange. A flanged connection with properly selected and installed gasket

seals has a low potential for leaks. SLR finds that best engineering practices have been implemented to minimize potential leaks from flanges and connectors. Work practices to be implemented upon project startup, including an LDAR program, will mitigate leaks from flanged and screwed connections.

We find that it is feasible to implement an LDAR program with lower leak definition thresholds for valves, more frequent monitoring and tighter repair schedules than was proposed in the EIS/EIR.

Additional background and the results of SLR's review and conclusions are provided in the following sections. The author's curriculum vitae is provided as Appendix A.

# 1. PROCESS AND EQUIPMENT DESCRIPTION

This section provides a description of Ormat’s proposed motive fluid system design, as generally described in the EIS/EIR (Great Basin Unified Air Pollution Control District, et al., 2013). The following description details measures to mitigate fugitive emissions from equipment leaks that are part of Ormat’s standard design.

## 1.1 BINARY PROCESS OVERVIEW

Geothermal fluid is extracted from an underground reservoir and flows from the wellhead through pipelines to heat exchangers in the OEC. Inside the heat exchangers, the geothermal fluid heats and vaporizes a secondary organic “motive fluid” with a low boiling point. The motive fluid vapors drive turbines, which rotate generators to produce power. The vapors are then condensed to liquid phase in a condenser cooled by air. Condensed motive fluid (liquid phase) is recycled back into the heat exchangers by pumps, completing the cycle in a closed loop system. The cooled geothermal fluid is re-injected into the reservoir.

## 1.2 MOTIVE FLUID SYSTEM PROCESS EQUIPMENT DESCRIPTION

The motive fluid cycle is a closed loop system composed of steel piping, pressure vessels, shell and tube heat exchanger vessels, centrifugal pumps, valves, flanges and connectors, and turbines. Fugitive emissions of motive fluid may result from equipment leaks. Primary equipment proposed to be used in the motive fluid process that may potentially leak includes:

1. Rotating equipment seals (turbines and centrifugal pumps)
2. Butterfly flow control valves
3. Manual gate isolation valves
4. Flanged and screwed connections
5. Pressure relief devices

### 1.2.1 ROTATING EQUIPMENT SEAL SYSTEMS

Each turbine will be equipped with dual mechanical seals and pressurized barrier fluid systems meeting American Petroleum Institute (API) Standard 682 (API, 2014). The seal system design will meet API Std 682 Plan 53B standards for pressurized barrier system (closed circuit) for use in seal systems with high pressures and/or for hazardous or environmentally harmful processes. The seal and barrier fluid system will also be equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

Vertical centrifugal pumps will be used to pump condensed motive fluid (liquid phase) to the heat exchangers. The centrifugal pumps will each be equipped with dual mechanical seals and non-pressurized barrier/buffer fluid system conforming to API Std 682 Plan 52 (API, 2014).

## 1.2.2 VALVES

### 1.2.2.1 Control Valves

Flow control valves used in the motive fluid system will be quarter-turn rotary butterfly valves ranging from 8 to 20 inches nominal pipe size (NPS). Butterfly valves meet specifications set out in API Standard 609, including specifications for valve shaft seals (API, 2016). Quarter-turn butterfly valves will be used for on/off service, but will also function to regulate flow. One-quarter turn fully opens or closes the valves.

The proposed motive fluid system design includes two one-inch NPS ball valves meeting API Standard 608—Metal Ball Valves with Flanged, Threaded and Welding Ends (API, 2020) and API Standard 6D—Specification for Pipeline and Piping Valves (API, 2014).

### 1.2.2.2 Isolation Gate Valves

Manual gate valves will be used to safely isolate portions of the motive fluid system to facilitate maintenance, repair or replacement of process equipment components. Gate valves will be equipped with flexible graphite packing meeting API specifications to achieve low leak performance. The gate valves will meet specifications in API Standard 6D (API, 2014); API Standard 600 (API, 2014); API Standard 603 (API, 2018); and other referenced standards.

In conjunction with butterfly valves, the gate valves provide a double block and bleed system during maintenance to eliminate or minimize leakage during process isolation activities.

## 1.2.3 PIPING CONNECTIONS

Welded (“leakless”) connections will be used to the greatest extent possible to connect piping and certain fittings used in the motive fluid system.

Turbines, pumps, control valves, isolation valves and other equipment will be installed with flanged connections to enable safe removal for repair or replacement and minimize risk inherent to hot work necessary to remove equipment with welded connections. Flanged connections are sealed with gaskets or ring material as suitable for process conditions and meeting American Society of Mechanical Engineers (ASME) Standard Metallic Gaskets for Pipe Flanges (ASME, 2017).

Some smaller NPS pipe and instrumentation may be installed to piping and vessels using threaded connections.

## 1.2.4 PRESSURE RELIEF VALVES

Direct acting pressure relief valves (PRVs) conforming to specifications set out in API Standard 527 – Seat Tightness of Pressure Relief Valves (API, 2014) will be used for emergency pressure relief. For safety purposes PRVs must be configured to vent directly to atmosphere to relieve pressure in the event of an overpressure process condition, but the normal operating condition of each PRV is closed (sealed). To



minimize or eliminate leakage to atmosphere from each PRV seal during non-relief events, a rupture disk will be installed upstream of each PRV in n-pentane service. Each PRV and rupture disk will be equipped with a “tattle tale” pressure gauge to provide a visual indication of the integrity of the rupture disk. A pressure indication of the space between the PRV and rupture disk indicates a leak.

### 1.2.5 DIAPHRAGM PUMPS

Small, two- to three-inch NPS, portable pneumatic (air-driven) double diaphragm pumps will be used to drain and transfer motive fluid from isolated portions of the process to storage during maintenance, replacement and repair activities.

## 2. REVIEW OF STANDARDS AND PRACTICES FOR MINIMIZING EQUIPMENT LEAKS

Equipment is selected for any process design based on material and chemical considerations and best fit for the process, for example based on temperature, pressure, flow and duty. Once the equipment type is selected as appropriate for the functional requirements of the process design, the selection may be optimized to eliminate or reduce maintenance requirements and equipment leaks. Minimizing or eliminating leaks is desired for safety, environmental and economic reasons. In the case of motive fluid, n-pentane is costly. Some equipment leak mitigation measures may be required by regulation, but design according to codes and standards and following industry best practices ensures optimal performance and safety. This section provides a review of current equipment design codes and standards, regulatory standards for equipment leaks, and available alternative designs for leakless and low-leak equipment.

### 2.1 EQUIPMENT DESIGN STANDARDS REVIEW

ANSI, API, ASME, International Organization for Standardization (ISO), MSS and other organizations set standards for code development worldwide. Codes and standards are used to define systems, tests and equipment design, including standards relevant to rotating equipment seal systems, valves and other equipment. Manufacturers and process design engineers are not required by any rule or law to meet design standards, but adherence to API and other standards is the norm in petroleum and chemical processes when the highest quality is needed. Purchase of equipment by Ormat is based on specification sheets requiring adherence to these standards.

#### 2.1.1 API DESIGN STANDARDS

API standards are used worldwide in petroleum and petrochemical industry sectors and are appropriate for application to the light hydrocarbon motive fluid (n-pentane) system. API standards are developed under API's American National Standards Institute (ANSI) accredited process, ensuring that the API standards are recognized not only for their technical rigor but also their third-party accreditation which facilitates acceptance by state, federal, and increasingly international regulators (API, 2020).

##### 2.1.1.1 Rotating Equipment Seal Systems

Leaks from turbines and centrifugal pumps occur at the rotating shaft seal. Mechanical seal systems combined with barrier fluid systems prevent leaks of motive fluid from the rotating shaft. All shaft seals leak to some extent, but leaks are minimized by design using double mechanical seals with a suitable barrier fluid system such that the leaked fluid may be the barrier fluid instead of the process fluid. Ormat uses a heavy seal oil for barrier fluid.

API Standard 682 specifies requirements and gives recommendations for centrifugal and rotary pumps used in the petroleum, natural gas and chemical industries. Rotating shaft sealing systems conforming to API Standard 682 are intended to operate continuously for 25,000 hours without the need for

replacement while complying with either local emission regulations, or exhibiting a maximum leak screening value of 1,000 parts per million by volume (ppmv) as measured using EPA Method 21 (EPA, 2017), whichever is more stringent.

API Standard 682 includes standards for double (“dual” or “tandem”) mechanical seal systems. Laboratory testing and field evaluation have demonstrated that properly designed tandem mechanical seals can be used on light hydrocarbon pumps to maintain near zero emission levels (<50 ppm) (Key, Wang, & Lavelle, 1991). API Standard 682 includes specifications for dual mechanical seal systems with pressurized or unpressurized barrier fluid systems. EPA’s recommended best practices provides that leaks from pumps can also be reduced by using dual seals with or without barrier fluid (EPA, 2016).

#### 2.1.1.2 Butterfly Valves

API Standard 609, Butterfly Valves: Double-flanged, Lug- and Wafer-type, provides specifications for butterfly valves, including shaft and seals (API, 2016). Ormat’s design includes butterfly valves meeting API Standard 609 specifications.

A key advantage of rotary-style control valves in managing fugitive emissions is the rotating motion of the valve stem as the valve is opened and closed. The stem stays within the stem seal or packing area, minimizing the possibility of introducing foreign particles or debris into the sealing interfaces. As a result, these valves are typically more effective in reducing the possibility of fugitive emissions leakage, and normally deliver greater reliability and operating efficiency from this perspective (Wing & Smith, 2012).

The butterfly valve consists of a flat, circular disk hinged in its center, which closes or fully opens with a quarter turn. Seating for the disk is supplied by metal seats or resilient types of material like elastomers and plastics. Because of the advances in seating material, butterfly valves have found general acceptance in the oil, gas, chemical, water, and process fields. The valve is often used in place of a gate valve, but has the added advantage of flow regulation (Emerson, 2017). The ASME B31. 1 code (ASME, 2018) lists three valves standards, excluding cast iron and bronze valves. The standards are: 1) ASME B16. 34, Valves—Flanged, Threaded, and Weld End (ASME, 2017); 2) Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS) SP-67-2017: Butterfly Valves (MSS, 2017) and MSS SP-68-2017: High Pressure Butterfly Valves with Offset Design (MSS, 2017).

#### 2.1.1.3 Gate Valves

API Standard 600 Steel Gate Valves—Flanged and Butt-Welding Ends, Bolted Bonnets specifies packing material suitable for steam and petroleum fluids for temperature range from -29 °C to 538 °C (-20 °F to 1000 °F) (API, 2015).

Gate valves are used for on/off service and are designed to operate fully open or fully closed. Because of excessive vibration and wear created in partially-closed gates, the valves are not intended for throttling or flow regulation (Emerson, 2017). Gate valves are generally “multi-turn” valves, operated manually using a handwheel which moves a stem connected to a wedge or double disk upward or downward in a linear motion until the closure contact the valve seat.

As a consequence of physical wear due to linear stem motion and other physical or chemical degradation, external leaks (fugitive emissions) of process fluid may result by way of the stem/packing seals. Stem seals are composed of one- or two-piece packing material that encircles the stem. As the packing bolt is tightened down on the stem, the gasket is crushed, filling the space between the stem and the body housing. Packing materials are selected based on process fluid type and other process variables, primarily temperature and pressure. Graphite packing has been shown to meet stringent tightness class ( $\leq 200$  ppm measured leakage) based on production testing using helium (ISO, 2015).

#### 2.1.1.4 Ball Valves

Rotary ball valve contains a ball-shaped plug within a valve body which regulates flow. The ball has a circular hole or flow-way through its center and when turned one-quarter of the way, the flow stops. Ball valves dissipate relatively little flow stream energy due to streamlined internal contours and minimal turbulence. (Emerson, 2017). Ball valves have low pressure drop and can open and close quickly. Ball valves are best suited for on-off control and are not optimal for throttling control.

API specifications for ball valves include API Standard 608–Metal Ball Valves with Flanged, Threaded and Welding Ends (API, 2020) and API Specification 6D–Specification for Pipeline and Piping Valves (API, 2014). API Standard 608 specifies the requirements for metal ball valves suitable for petroleum, petrochemical and industrial applications that have butt-welding or flanged ends for NPS 1/2 through NPS 20 and threaded or socket-welding ends for NPS 1/4 through NPS 2, corresponding to the nominal pipe sizes in ASME B36.10M. The standard also applies to metal ball valves in pressure classes 150, 300, and 600 for flanged and butt-welding ends and in pressure classes 150, 300, 600, and 800 for socket-welding and threaded ends. API Specification 6D specifies requirements and provides recommendations for the design, manufacturing, testing, and documentation of ball, check, gate, and plug valves for application in pipeline systems meeting ISO 13623 or similar requirements for the petroleum and natural gas industries.

To minimize external leaks, the standards specify that materials for stem seals, body seals and gaskets must be suitable for use at the maximum operating temperature and corresponding maximum pressure rating of the valve as stated by the valve manufacturer. Metallic parts of any flange gasket must have corrosion resisting properties equal to or superior to the shell material.

#### 2.1.1.5 Flanges and Gaskets

API Specification 6A specifies requirements for the performance, dimensional and functional interchangeability, design, materials, testing, inspection, welding, marking, handling, storing, shipment, purchasing, repair, and remanufacture of wellhead and tree equipment for use in the petroleum and natural gas industries (API, 2018). ASME B16.20 Metallic Gaskets for Pipe Flanges covers materials, dimensions, tolerances, and markings for metal ring-joint gaskets, spiral-wound metal gaskets, metal-jacketed gaskets, and grooved metal gaskets with covering layers. These gaskets are dimensionally suitable for use with flanges described in reference flange standards ASME B16.5, ASME B16.47, API Specification 6A, and ISO 10423 (ASM171). Gasket material for flanges is also addressed in API standards for valves, including for example API Standard 608 and 609. In accordance with API standards and

recommended practices and to minimize the potential for gasket failure and leaks, gasket materials are selected to suit process conditions, such as temperature, pressure, and chemical characteristics.

#### 2.1.1.6 Pressure Relief Valves

PRVs are safety devices designed to protect a pressurized vessel, piping or equipment from an overpressure event that could cause the pressure to increase beyond the maximum allowable working pressure (MAWP). Since the normal operation condition for a PRV is closed, one important consideration is the valve's ability to maintain a tight seal. The valve part alignment and the selection of materials of construction all play a key role to meet industry seat leakage standards such as API Standard 527 – Seat Tightness of Pressure Relief Valves (API, 2014) which is often used for process PRVs built per ASME Section VIII. API Standard 527 requires the valve seat to be tested for tightness normally at 90 percent of the set pressure. The API standard acceptance criteria allows minor bubble leakage at this operating pressure but this allowed leakage is many orders of magnitude more stringent than required for other types of valves (Emerson, 2012).

PRVs may be used independently or in combination with rupture disks to provide the required protection against excessive pressure that may result in a catastrophic release. PRVs and rupture disk devices are designed to meet API Standard 520 (API, 2014), which references API Standard 527. API Standard 527 covers specifications for flanged steel pressure relief valves and provides basic requirements such as orifice designation and area, valve size, pressure rating, materials etc. for direct spring-loaded pressure relief valves and pilot-operated pressure relief valves.

## 2.2 REGULATORY STANDARDS REVIEW

Equipment leaks of VOC and hazardous air pollutants (HAP) are regulated by Federal CAA programs and state/local air quality regulations for certain source categories. ROG, as defined by the California Air Resources Board, are regulated in California. Both VOC and ROG include total organic gas (TOG) minus certain excluded compounds.<sup>1</sup> The n-pentane motive fluid is a light hydrocarbon classified as a VOC and a ROG, but that is not a listed air toxic or HAP.<sup>2</sup>

### 2.2.1 LEAK DETECTION AND REPAIR

Federal CAA program regulations, including New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), and other rules, require implementation of LDAR programs for certain “affected facilities.”<sup>3</sup> LDAR work practices are designed to reduce fugitive emission of regulated VOC or HAP by identifying and eliminating equipment leaks. In general,

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<sup>1</sup> Volatile organic compounds (VOC) and reactive organic gases (ROG) each includes any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, and excluding certain listed compounds such as methane and ethane.

<sup>2</sup> Hazardous air pollutant means any air pollutant listed in or pursuant to section 112(b) of the Act. There are 187 listed hazardous air pollutants.

<sup>3</sup> 40 C.F.R. Parts 60, 61, 63 and 65

“equipment” means pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, and flanges or other connectors “in VOC service,” “in volatile HAP (VHAP) service,” and any devices or systems otherwise regulated by a rule (subpart). LDAR programs require the use of portable instruments, optical gas imaging (OGI), or sensory methods (audible, visual, olfactory) to identify leaks based on a threshold established by the referencing standards. For instrument monitoring using EPA Method 21, regulatory leak thresholds are defined in terms of a ppmv concentration reading, total organic carbon (TOC) basis. Leak concentration thresholds (“leak definitions”) in the federal standards range from 500 to 10,000 ppmv TOC. The Bay Area Air Pollution Control District (BAAQMD) and the South Coast Air Pollution Control District (SCAQMD) have promulgated leak definitions as low as 100 ppmv for some equipment (valves and connections) located at petroleum refineries and chemical plants. Best available control technology (BACT) determinations for reducing fugitive emissions of organic compounds at “major stationary sources” of VOC have also set BACT to include a leak definition threshold of 100 ppmv. For sensory methods, a leak is defined as observed evidence of a potential leak, for example dripping liquid. For OGI, a leak is generally defined as any visible emission from a fugitive emissions component observed using the infrared (IR) camera. LDAR requirements are found in 47 individual subparts, each addressing specific industrial source categories (EPA, 2017). Federal LDAR program standards primarily regulate “affected facilities” in the synthetic organic chemical manufacturing industry (SOCMI) and other chemical and petrochemical segments, and the petroleum refining, natural gas processing, and crude oil and natural gas production sectors. There are no federal LDAR standards explicitly applicable to the geothermal power industry sector.

Some federal settlements (consent decrees) have stipulated “enhanced LDAR program” or “ELP” requirements for certain defendants, including owners and operators of petroleum refineries or chemical plants. Elements of so called ELP work practices have included for example:

- Reduced leak definition thresholds for certain equipment – e.g., from 10,000 ppm to 500 ppm for valves
- Increased leak survey frequencies – e.g., quarterly
- Implement action levels below leak definition thresholds triggering repair
- Tightened schedules for “first attempt at repair” and final repair of leaking equipment
- Repair verification monitoring
- Limited delay of repair
- Internal/third-party audits of LDAR program

LDAR work practices generally stipulate a monitoring frequency specific to component type (valves, etc.) and service (gas/vapor, light liquid or heavy liquid), for example monthly, quarterly, semiannually or annually. Repair deadlines in terms of days after leaks are discovered are also provided.

Pumps equipped with a dual mechanical seal system that includes a barrier fluid system meeting specified design and work practice standards are exempt from routine LDAR requirements under federal standard for SOCOMI facilities and other referencing standards.<sup>4</sup>

## 2.3 ALTERNATIVE DESIGN PRACTICES REVIEW

Incremental reductions in fugitive emissions from equipment leaks can be achieved without altering the fundamental design of the process using available alternative equipment designs, if feasible and safe. In addition, fugitive emissions from pumps and valves can be reduced through the use of “leakless” valves and “sealless” pumps, if technically and economically feasible.

Common leakless valves include bellows valves and diaphragm valves. Sealless pumps include diaphragm pumps, canned motor pumps, and magnetic drive pumps. Leaks from pumps can also be reduced by using dual seals with or without barrier fluid (EPA, 2016). Technical feasibility of using leakless valves and sealless pumps may be limited by process operating conditions, including temperature and pressure, fluid properties and heavy use, materials of construction and other considerations (EPA, 2016). Conformance with these practices is not required by state or federal regulation.

Equipment design alternatives that may be considered to reduce fugitive emissions from equipment leaks are described in the following sections. Equipment design alternatives may be considered only if technically and economically feasible and within the functional constraints of the process design. That is to say, equipment alternatives may be selected for process units within the construct of the process design, but the process design would not be substantially altered only for purposes of accommodating an alternative equipment selection to incrementally reduce the potential fugitive emissions.

### 2.3.1 ROTARY VALVES VERSUS SLIDING STEM VALVES

Leaks from valves occur from gasketed flanged connectors (discussed separately) and packing systems. Linear sliding (rising and lowering) stem valves, including gate and globe designs, account for higher fugitive emissions than rotary designs, including butterfly and ball designs. The rising and rubbing motion inherent in sliding stem designs is more difficult to seal properly than the short, 90-degree rotary motion of a stem in a quarter-turn butterfly or ball valve. Linear valves are, in general, more cost-effective for flow control and are widely used in chemical plants, petroleum refineries and oil and gas production and gas processing applications. The use of rotary flow control valves in lieu of less expensive linear valves results in lower leak rates and reduced operation and maintenance.

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<sup>4</sup> 40 C.F.R. Part 60 Subpart VVa—Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006. §60.482-2a(d)

### 2.3.2 GRAPHITE PACKING SYSTEMS

Flexible graphite packing is chemically resistant and self-lubricating, and capable of sealing to extremely low levels of leakage for applications subject to parts per million (ppm) limits (ISO, 2015). Subject to economic feasibility, the use of graphite packing systems versus traditional packing designs is a good practice for reducing equipment leaks from sliding stem gate valves and globe valves.

### 2.3.3 SEALLESS CENTRIFUGAL PUMPS

Shaft seals are a principal source of leakage in conventional centrifugal pumps. Sealless pumps avoid use of shaft seals for primary containment. The term “sealless” is a generic industrial word used for pumps not employing dynamic seals such as mechanical shaft seals, centrifugal seals, or packing as the primary method of sealing liquid or vapor from the atmosphere. “Hermetic” would accurately describe the construction of sealless pumps. It is understood that static seals may be used in pumps that are designated “sealless.” Use of the term “sealless” should not be construed as any type of warranty or guarantee against pump leaks (ANSI, 2016).

Sealless pumps fall into two categories: magnetic driven pump (MDP) and canned motor pump (CMP). Sealless pump design eliminates the dynamic shaft seal between the wetted end of a centrifugal pump and the atmosphere by enclosing the pump and its rotor assembly inside a pressure vessel with the pumped fluid. The pressure vessel or “primary containment” is sealed by static seals, such as gaskets or O-rings. The inner rotor assembly is driven by a rotating magnetic field that is transmitted through a containment barrier. Standards for sealless centrifugal pumps for petroleum, petrochemical, and gas industry process service are set out in API Standard 685 (API, 2011).

Advantages and limitations of sealless pumps are described below (ANSI, 2016). Properly designed, applied, and operated sealless pumps may offer the following advantages:

- No leakage through primary containment to the environment during normal operation.
- Optional backup secondary containment or control.
- No loss of valuable liquids.
- Lower noise levels (CMP designs).
- Suction pressure usually does not affect the axial thrust.
- No periodic shaft seal replacement cost.

Technical limitations of sealless pumps include:

- Temperature of motor windings (CMP) or magnet components (MDP)
- Control of bearing environment is required to provide clean liquid, not vapor, for good bearing life.
- Primary containment device is relatively thin and corrosion potential shall be carefully considered.
- With some circulation plans for volatile liquids, drive-generated heat may affect the net positive suction head required.
- Overheating of drive section may occur with loss of flow or loss of suction.



- Size/capacity limitations

#### 2.3.4 DIAPHRAGM PUMPS

Diaphragm pumps are sealless reciprocating positive displacement pumps driven either by electric motor or powered pneumatically by air or gas. Diaphragm pumps are widely used in certain applications where the fluid is a slurry or contains particulates. Diaphragm pumps are best for low-flow rate applications.

API Standard 675 Positive Displacement Pumps - Controlled Volume for Petroleum, Chemical, and Gas Industry Services specifies minimum requirements for reciprocating, controlled volume pumps and pump units for use in the petroleum, petrochemical, and gas industry services (API, 2015).

Properly designed, applied, and operated reciprocating positive displacement diaphragm pumps may offer the following advantages:

- Best suited for high pressure, low flow applications.
- Optimal for slurries or particle-laden streams
- Suitable for abrasive and corrosive liquid applications
- Available in pneumatic (air or gas driven) or electric
- Portable/transportable models
- Sealless

Technical limitations of reciprocating positive displacement diaphragm pumps include:

- High maintenance and short life
- Pulsation
- Size/capacity limitations
- Low maximum speed
- Not suitable for high-rate, continuous flow

#### 2.3.5 DIAPHRAGM VALVES

Diaphragm valves are designed to control flow in corrosive services where line content could adversely affect valve components. Other applications for diaphragm valves are in services where contamination from outside sources cannot be tolerated; for example, the pharmaceutical and food industries. Diaphragm valves differ from other valves in that the body of the valve and line content is sealed off from all moving parts of the valve by a flexible diaphragm. This flexible diaphragm seal prevents stem packing leakage of line content and flow contamination by packing lubricants. Diaphragm valves are suitable for flows which are viscous or contain solids. There are many types of diaphragm materials available, depending on service and temperature conditions. (Emerson, 2017).

Diaphragm life (replacement interval) is dependent on the diaphragm material type, stem travel distance and other factors.

Properly designed, applied, and operated diaphragm valves may offer the following advantages:

- Diaphragm valves are particularly suited for the handling of corrosive fluids, fibrous slurries, radioactive fluids, or other fluids that must remain free from contamination
- Diaphragm valves can also be used for throttling service
- The operating mechanism of a diaphragm valve is not exposed to the media within the pipeline
- There are no packing glands to maintain and no possibility of stem leakage in valves
- Tight shut-off
- Easy maintenance

Primary technical limitations of diaphragm valves include:

- Working temperatures and pressures are limited by the diaphragm material. Generally the pressures are limited to 200 psi (1,380 kPa) and temperatures up to 400 °F (204 °C)
- Diaphragm valves are available in limited sizes, usually NPS ½ to 12 (DN 15 to 300)

### 2.3.6 BELLOWS VALVES

A bellows-sealed valve is designed with a metal bellows that expands or contracts with the linear stroke of the valve while providing a solid, permanent barrier between the fluid medium in the valve body and any potential leak paths to the atmosphere. The most common valve types to be fitted with bellow seals are the gate and globe designs, which are suited for use with bellows due to their internal construction and axial movement of the valve stem. Bellows technology cannot be applied to rotational valves such as butterfly valves and ball valves, as the valve movement is not linear.

For gate and globe valves the stem/packing leak path is the most vulnerable leak path to the environment in the valve design. The valve's packing is a dynamic seal and must perform its function during idle periods, when pressure and temperatures can fluctuate within the full pressure/temperature capability of the valve, and during periods when the valve stem is stroked (Jolly, 2020). A Bellow Seal Valve is designed to eliminate any leak paths at the bonnet joint and packing. The valve, with its bellows and seal-welded construction, totally confines the flow media within the valve pressure boundary. The valve packing is totally isolated by the bellows from the flowing medium and serves in a back-up role only (Vogt, 2020). Bellows seal bonnets are used when no leakage (less than  $1 \times 10^{-6}$  cc/sec of helium) along the stem can be tolerated. Bellows-sealed valves are often used when the process fluid is toxic, volatile, radioactive, or very expensive (Emerson, 2017).

There are a number of limitations that can be expected from a bellows valve. They can be summarized as follows (Jolly, 2020):

- **Cycle Life:** Bellows have a finite life when used in valves that expose them to pressure fluctuations and full compression and extension loads. BS-5352 requires that bellows gate valves have a 2000 cycle life and globe valves to have a 10,000 cycle life. The cycle life limitation may not allow their use in some highly stroked valves whose cycle life exceeds the bellows life. The cycle life limitation will require a quality backup packing system to overcome a leak in the bellows.

- **Pressure Retention Capability:** Since bellows are designed with the intent that thin wall formulas be used, bellows with membrane thickness that provide flexibility and low spring rates are the outcome. It is highly unlikely that bellows can be designed to interface with larger high pressure valves that have traditionally used the thick wall formulas in designing of the pressure boundary. Bellows for use in gate and globe valves that must be designed to retain high pressures while providing flexibility and a low spring rate may be impossible.
- **Size Limitation:** The operating torque of a standard gate or globe valve is influenced by the area of the stem and the operating pressure acting on this area. The load on a bellows valve stem is a function of the bellows inside/outside diameters. The size of the bellows required to accommodate the stem, pressure and stroke of larger valves may lead to a bellows with a spring rate and unbalanced area on the valve stem so large that it will be impractical to operate when used in a gate or globe valve.
- **Corrosion Control:** The selection of the material for the bellows will be critical. Matching of service to the bellows material will require greater caution because unlike the pressure boundary of a valve there is no inherent corrosion allowance in the bellows of a bellows valve. Bellows are typically available in 304, 316, 321 stainless steels, Inconels 600 and 625, Incoloy 825, Monel 400, and Hastelloy "C" materials.
- **Envelope Dimensions:** Bellows gate valves will have a much greater height than the conventional gate valves. The bellows must be designed to accommodate the high stroke requirements of a gate valve. This leads to a long bellows that requires the bellows gate valve to be extended, impacting on piping configuration and layout.
- **Bellows Valve Costs:** It is expected that bellows valves will be anywhere from 3 to 10 times more expensive than their standard packed valve equivalent. This higher cost is primarily due to the cost of the bellows, and interfacing it to the valve pressure boundary. The higher price tag for reliable bellows valves still may be economically attractive when reviewed in regard to emerging EPA requirements and incentives.

### 2.3.7 LEAKLESS VERSUS FLANGED CONNECTIONS

Minimizing equipment leak components in process design is a best practice for reducing the potential for fugitive emissions. For example, to the extent feasible based on process considerations, welded connections may be used for some piping and fittings instead of screwed or flanged connections. Any equipment component connected to piping using welded connections can only be removed using risky hot work (cutting, welding, and brazing) any time replacement or repair is necessary. Hot work presents elevated fire and explosion hazards due to the potential for flammable motive fluid leaks to ignite. In addition, removing a welded component for maintenance involves a greater potential for n-pentane leaks than from a leaking flange because a small amount of non-condensed n-pentane vapors would be discharged to the atmosphere during the purge. Consequently, for certain equipment components that would require frequent replacement or repair over the life of the project, the use of flanged connections is a best practice.

### 3. COMPARISON OF PROPOSED PROCESS WITH EXISTING BINARY PLANTS

SLR looked for practices and measures for reducing fugitive emissions from equipment leaks of motive fluids from other binary geothermal plants for comparison with Ormat's proposed project. We found one study reporting fugitive emissions of motive fluid from three binary plants in California and located within the GBUAPCD and the Imperial County Air Pollution Control District. The results of the study, *Binary Power Plant CO<sub>2</sub> Life Cycle Emissions Including Isobutane Fugitive Leakage*, were presented at the Workshop on Geothermal Reservoir Engineering held at Stanford University in 2017 (Mattson, Mallozzi, & Mines, 2017). The report compiled data from the three binary plants, which had been operating for more than 25 years. Each binary plant used iso-butane as the motive fluid, but the binary cycle was otherwise comparable to Ormat's proposed project.

The results, derived from motive fluid "inventory changes" over a 15 month period, indicated that a well maintained binary plant releases approximately 0.13 grams of motive fluid (isobutane) per kilowatt-hour (g/kWh) from "normal leakage of valves and seals." A well maintained plant is contrasted with a binary plant experiencing equipment failures. The Ormat project will be newly constructed and will include more recent equipment technologies, so the emissions from a "well maintained plant" is comparable. In any case, we found no studies or other information describing specific design measures to mitigate fugitive emissions from equipment leaks for a binary plant.

With no documented fugitive emission mitigation measures specific to binary plants in the geothermal power sector available in the public domain, such measures and practices employed in the SOCMI, petroleum refining and upstream oil and gas production industry sectors were evaluated. The motive fluid (n-pentane) is a hydrocarbon compound commonly found in operations within the SOCMI and petroleum sectors.

## 4. FEASIBILITY ANALYSIS

An analysis of additional fugitive emission mitigation measures that may be available and feasible to further reduce the potential for leaks from the motive fluid process beyond the project design described in the EIS/EIR is presented. The term “feasible” is defined in the CEQA Guidelines § 15364 as “capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors.”

As part of the project generally described in the EIS/EIR, Ormat has proposed design measures that effectively reduce the potential for fugitive emissions from the motive fluid process, including:

1. Double mechanical seal and barrier fluid systems meeting API standards for turbines and centrifugal pumps and measures to detect the failure of barrier fluid systems
2. Rotational butterfly valves inherently lower in leaks from stem seals than linear sliding stem control valves and meeting or exceeding API specifications
3. Graphite packing systems for gate valves meeting or exceeding API specifications
4. Sealless pneumatic (air) diaphragm pumps for evacuating motive fluid from isolated portions of the motive fluid process after isolation for equipment replacement or repair
5. Combination of butterfly valves and isolation valves in a double block and bleed seal to eliminate leaks from isolated piping and equipment while motive fluid is evacuated
6. Flanged connections for equipment that is or may be routinely removed for replacement or repair to facilitate safe maintenance while reducing the potential for n-pentane releases during such activities
7. Flanges and gaskets compatible with motive fluid and meeting ASME specifications
8. Direct acting PRVs meeting stringent API seat tightness standards
9. Rupture disks to minimize leaks from PRVs
10. Use of leakless welded connections to the greatest extent practicable

The equipment components listed above are part of Ormat’s standard design, as generally described in the EIS/EIR. These “standard” measures, however, were not detailed in that document.

The following feasibility analysis addresses alternative equipment design, including so called “leakless” valve and “sealless” pump technologies, not already proposed for the project. The feasibility analysis also addresses “enhanced” LDAR work practices, including certain practices not proposed in the original EIS/EIR.

### 4.1 DEMONSTRATION OF INFEASIBILITY OF SEALLESS CENTRIFUGAL PUMPS

The range of hydraulic design capacities of sealless pumps is limited. In *A User’s Engineering Review of Sealless Pump Design Limitations and Features* (Hernandez, 1991), the author presented sealless pump

performance ranges (pumping capacities) available worldwide at the time. SLR conducted online research and we were unable to find CMPs or MDPs manufactured in the U.S. or U.K. with a design capacity sufficient to meet the size (NPS), gallons per minute (gpm) and “head” capacity (feet) required for the motive liquid feed pumps. Use of sealless pumps in the motive fluid system design is not feasible at this time.

#### **4.2 DEMONSTRATION OF INFEASIBILITY OF DIAPHRAGM PUMPS FOR MOTIVE FLUID CIRCULATION**

Circulation of motive liquid requires continuous high flowrate (>1,500 gpm) pumping capacity. Diaphragm pumps are designed to pump at a low pulsating flowrate. Diaphragm pumps are not capable of accommodating high-rate, continuous flow design requirements. In addition, the maximum design capacities of diaphragm pumps currently manufactured are insufficient to achieve the the design flow capacity for the motive fluid system. Notwithstanding pumping capacity limitations, diaphragm pumps are not reliable for continuous heavy-duty use. Frequent replacement of diaphragms is necessary, resulting in increased operation and maintenance costs.

For all of these reasons, diaphragm pumps are not feasible for application as motive liquid feed/recycle pumps.

#### **4.3 DEMONSTRATION OF INFEASIBILITY OF DIAPHRAGM VALVES**

Diaphragm valves are considered “leakless,” but leaks and releases of liquid to the environment do occur as a consequence of liquid leaks between diaphragm and valve body, and tears and ruptures of the diaphragm. To mitigate diaphragm failure due to physical wear and chemical degradation, the diaphragm must be replaced on a routine basis, resulting in costly process downtime and increased operating and maintenance costs, as well as safety concerns. Rupture of a diaphragm and the resulting release of process fluid has far greater environmental consequences than a leak from the seal of a conventional valve.

The operating temperature of the motive fluid may exceed 300 °F with operating pressures exceeding 400 psig. Maximum line pressure specifications for diaphragm valves decrease with increasing size (NPS) and increasing temperature as a function of diaphragm material type. Each diaphragm material has a maximum recommended temperature specification and each valve make/model has working pressure and temperature limits. We could find no diaphragm valves meeting the pressure and temperature specifications.

Lastly, carbon steel diaphragm valves are not commercially available in the sizes needed. The motive fluid process piping sections where control valves are utilized range from 12 to 20 inches NPS. Diaphragm valves are available in sizes less than 12 inches NPS.

Diaphragm valves are not feasible for use in the motive fluid system.

## 4.4 DEMONSTRATION OF INFEASIBILITY OF BELLOWS VALVES

Bellows seal valves are considered “leakless,” but as with any equipment, physical wear can result in bellows failure and leakage of process fluid. Cycle life of bellows is impacted by stroke and cyclic pressure. The cycle life limitation will require a quality backup packing system to overcome a leak in the bellows (Vogt, 2020). A demonstration of infeasibility of bellows sealed control valves and gate valves is provided in the following discussion.

### 4.4.1 FLOW CONTROL VALVES

Bellows seals are used in sliding-stem globe valves and gate valves, as described in Section 2.3.6. Flow control within the proposed motive fluid process will be accomplished using rotational butterfly valves, which are best suited for rapid (quarter-turn) closure and flow control with minimum pressure drop across the valve. A pressure drop results in cooling and the potential for liquid condensation in the flow line. Liquid droplets are damaging to turbines. Linear sliding stem globe and gate valves for which bellows are exclusively designed are not technically suited for motive fluid flow control while minimizing pressure drop. Butterfly valves and ball valves are rotational designs. Bellows sealed valves can only be used in linear designs and cannot be used in rotational valves. Consequently, bellows seal valves are not a technical feasible alternative technology for motive fluid flow control.

### 4.4.2 MANUALLY OPERATED GATE VALVES

As discussed in Section 1.2.2.2, manually operated gate valves with graphite packing will be used for process isolation in the motive fluid system. Process isolation and evacuation of motive fluid is necessary to facilitate safe maintenance, repair and replacement of critical equipment in n-pentane service. The gate valves range in size (NPS) from 4 to 12 inches. In general, bellows sealed gate valves are technically feasible to function as isolation valves, however there are limitations in valve sizes currently manufactured and commercially available. The largest steel bellows sealed gate valves with suitable pressure and temperature ratings found to be commercially available are 10-inch NPS. It is expected that bellows valves will be anywhere from 3 to 10 times more expensive than a standard packed valve equivalent (Vogt, 2020).

We can estimate the incremental reduction in potential fugitive emissions resulting from replacing a traditional packed valve with a bellows sealed valve using equipment leak emission factors and correlations developed by EPA (EPA, 1995). EPA collected data on equipment leak emissions of TOC from refineries, marketing terminals, oil and gas production operations, and SOCFI process units. Based on equipment leak data, EPA developed equipment leak emission estimation approaches and emission factors for equipment in those industry sectors. Emission factors in terms of kilograms TOC emitted per hour per source (kg/hr/source) for equipment (valves, connectors, etc.) and service (e.g., gas and light liquid) were developed where those emission factors could be applied to the number of each type of component in each service at a facility to yield mass emissions (kg/hr) of TOC. The service categories are defined based on the state (gas or liquid) at process operating conditions. The n-pentane motive fluid is in gas phase after the heat exchangers and in light liquid phase after condensation.

EPA combined the refinery, marketing terminal data, and oil and gas production operations data to develop petroleum industry correlations for equipment leaks. For valves (all services), correlation equations were developed to estimate mass emissions from a leaking valve in terms of kb/hr/valve based on leak screening values. A screening value (SV) is a measure of the concentration of leaking compounds in the ambient air that provides an indication of the leak rate from an equipment piece, and is measured in units of ppm. The correlation equation for valves is provided below (EPA, 1995):

$$\text{LEAK} = 2.29\text{E-}06 * \text{SV}^{0.746}$$

Where:

$$\text{LEAK} = \text{mass emissions of TOC (kg/hr/source)}$$

Using the correlation equation above and conservatively applying a screening value of 500 ppmv for valves, a gate valve may emit up to 4.6 pounds of n-pentane per year per valve, equivalent to 0.002 tons per year n-pentane per valve.

Assuming a zero leak rate for bellows sealed valves is achievable in practice, the 4.6 pounds per year per valve emission rate represents the difference between a bellows sealed valve and a valve with graphite packing. The 500 ppmv screening value is the leak definition threshold for an LDAR program (see discussion in Section 4.6). A valve observed to be leaking at a concentration at or above 500 ppm must be repaired and re-monitored. In practice, an infrequently used isolation valve with graphite packing may not leak at levels at or above the screening level. There are seven gate valves used for isolation in the motive fluid system design. Based on the correlation described above at the 500 ppm SV, the incremental increase in combined total potential VOC/ROG (n-pentane) emissions is 32 pounds per year, equivalent to 16 one thousandths of a ton per year.

Size limitations of bellows-sealed valves notwithstanding, for gate valves used infrequently for process isolation, bellows technology would not reduce fugitive emissions beyond reductions already achieved by graphite packing materials combined with LDAR work practices (500 ppmv SV). In practice, a gate valve with graphite packing would be expected to achieve leak rates less than 200 ppmv. Consequently, we find that bellows sealed valves are not feasible for use as isolation valves in the motive fluid system.

## 4.5 LEAKLESS CONNECTIONS

Welded (“leakless”) connections are used in the motive fluid system design to the greatest extent practical and wherever feasible for piping, fittings and other components. Welded connections are not technically feasible for all equipment, including control valves, pumps and other equipment that must be periodically removed for repair or replacement in a safe manner. Ormat’s motive fluid system design minimizes the need for cutting, welding, and brazing (“hot work”), which poses safety concerns and risk of fire and explosion hazards due to the potential for motive fluid leaks. In addition, removing a welded valve for maintenance involves more risk for n-pentane leaks than from a properly designed and installed flange.

The use of welded connections is not feasible for turbines, pumps, control valves and other critical components. Properly installed flanges with appropriate gaskets can achieve low-leak performance.



## 4.6 FEASIBILITY OF IMPLEMENTING MORE STRINGENT LDAR WORK PRACTICES

The LDAR program described in the Final EIS/EIR provided that the leak be repaired “as soon as practical” where the leak exceeds 10,000 ppmv. No timeline for “first attempt at repair” and final repair was prescribed.

Development and implementation of a more stringent LDAR program for equipment in VOC service is technically and economically feasible and widely achieved in practice by petroleum refineries and chemical plants. The motive fluid system is not comparable to a petroleum refinery or chemical plant in terms of the quantity of fugitive emissions components and the potential for VOC and air toxic/HAP compound emissions from equipment leaks, but n-pentane is a VOC and equipment within the motive fluid system is “in VOC service.” Feasible LDAR work practices for equipment in VOC service that are generally consistent with the most stringent federal CAA standards for equipment leaks<sup>5</sup> and including alternative provisions for OGI survey programs provided by CAA standards for crude oil and natural gas production<sup>6</sup> are summarized in Table 1.

**Table 1 Feasible LDAR Work Practices for Motive Fluid Process Equipment in VOC (n-Pentane) Service**

EQUIPMENT	LEAK DEFINITION <sup>7</sup>	MONITORING FREQUENCY	EXCLUSIONS FROM MONITORING
Pumps	Visual indications of liquids dripping from seal or 2,000 ppmv	Weekly visual inspections; monitor if visual indication of a leak cannot be eliminated	Each pump equipped with a dual mechanical seal system that includes a barrier fluid system
PRVs	500 ppmv or visible emissions observed using OGI	Quarterly	PRVs equipped with a rupture disk upstream of the pressure relief device
Valves	500 ppmv or visible emissions observed using OGI	Quarterly	Valves in vacuum service

A feasible best practice for an LDAR program would also include routine monitoring of flanged and screwed connectors in n-pentane service at some frequency. Monitoring of connectors is not required by NSPS, but is usually conducted during monitoring surveys for valves.

The centrifugal pumps used for motive fluid circulation are equipped with double mechanical seals and a barrier fluid system, as describe in Section 1.2. PRVs are equipped with rupture disks, as described in Section 1.2.4. Such equipment would be exempt from routine monitoring (LDAR) under the federal standards. Consequently, the LDAR program would focus on valves and connectors.

<sup>5</sup> Federal NSPS at 40 C.F.R. Part 60 subpart VVa. 72 FR 64883, Nov. 16, 2007

<sup>6</sup> Federal NSPS at 40 C.F.R. Part 60 subpart OOOOa. 81 FR 35898, June 3, 2016, as amended at 83 FR 10638, Mar. 12, 2018

<sup>7</sup> As determined using EPA Method 21 (ppmv) or visual indication of a leak using optical gas imaging or visual means.

Consistent with federal NSPS for chemical plants, when a leak is detected from a valve or connector, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected. A first attempt at repair shall be made no later than 5 calendar days after each leak is detected. Best practices for first attempts at repair for valves include:

- (1) Tightening of bonnet bolts;
- (2) Replacement of bonnet bolts;
- (3) Tightening of packing gland nuts;
- (4) Injection of lubricant into lubricated packing.

Since n-pentane is neither a listed HAP nor a regulated air toxic compound and the facility is not a major stationary source of VOC, an enhanced LDAR program more stringent than the most rigorous NSPS required for new chemical and natural gas processing plants, as described above and summarized in Table 1, is not reasonable or warranted.

## 5. CONCLUSIONS

For all of the reasons described above and in keeping with international codes and standards and EPA guidance, we find that Ormat's proposed motive fluid system design follows best available design standards for rotating equipment, valves and connectors and incorporates best practices for minimizing the potential for fugitive emissions of ROG and VOC from equipment leaks. No additional available sealless, leakless or low-leak technologies are feasible to further reduce fugitive emissions from equipment leaks. Evidence described in Section 4 demonstrates that the alternative sealless, leakless or low-leak technologies described in Section 2.3 are infeasible for one or more of the following reasons:

- Unable to perform the intended physical function within the motive fluid process;
- Incompatible or unsuited for the motive fluid process conditions (temperature, pressure, flowrate, chemical properties or duty);
- Not available in the size or maximum design capacity needed;
- Not effective in mitigating the potential for equipment leaks beyond that already achieved through the combination of Ormat's standard process design and a robust LDAR program; and/or
- Presents unnecessary fire and explosion hazards associated with routine replacement and repair.

We find that it is feasible to enhance the LDAR work practices proposed in the EIS/EIR for valves in n-pentane service to generally conform to federal NSPS applicable to and achieved in practice for affected SO2 and petroleum industry plants. For valves, a screening level (leak definition) of 500 ppmv TOC (Method 21) or emissions observed using OGI is feasible. The LDAR program would include quarterly leak surveys of valves using either Method 21 or OGI. When a leak is observed as defined above, a first attempt at repair shall be made no later than 5 calendar days after each leak is detected. Final repair should be completed as soon as practicable, but no later than 15 calendar days after the leak is detected, unless a delay of repair is warranted. Delay of repair of valves for which leaks have been detected would be allowed if repair within 15 days is technically infeasible without a motive fluid process unit shutdown. Repair of such equipment shall occur before the end of the next process unit shutdown and monitoring to verify repair must occur within 15 days after startup of the process unit. LDAR work practices would focus on valves and connectors. Rotating equipment (turbines and pumps) equipped with double mechanical seals and barrier fluid systems and PRVs equipped with rupture disks would not be subject to LDAR, consistent with federal standards.

Process design measures already incorporated into Ormat's standard design as generally described in the EIS/EIR and additional LDAR work practice mitigation measures combine to minimize the potential for fugitive emissions of ROG/VOC from equipment leaks within the motive fluid process.

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## APPENDIX A

### AUTHOR'S RESUME

#### **Feasibility Analysis of Available Equipment Leak Mitigation Measures: Low-Emissions and Leakless Design Technologies**

July 2020

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## KENNY MALMQUIST

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Kenny Malmquist is a Petroleum Engineer with over 32 years of diverse professional experience in air quality engineering consulting. He is an experienced technical consultant familiar with processes, systems and operations within the upstream oil and gas, gas processing, petroleum refining, chemical/petrochemical, power, mining, manufacturing and other industry sectors. Mr. Malmquist is widely experienced with air quality standards, regulations and permitting programs administered by EPA and state/local agencies throughout the U.S. Since 1989, he has provided air quality engineering, permitting and compliance solutions to clients operating across North America. He is expert in EPA CAA programs, specializing in NSPS and NESHAP standards and regulations affecting the numerous industry sectors. Mr. Malmquist has been retained to provide nontestimonial technical support to clients' inside and outside legal counsel in a variety of complex civil and criminal litigation matters, particularly pertaining to government allegations of federal CAA violations. Kenny began his consulting career in California and he is familiar with ARB, SCAQMD, BAAQMD and other district air programs. Mr. Malmquist is a Managing Principal in SLR's air practice in Colorado.

### EXPERIENCE

- **Measurement and Quantification of Fugitive Emissions of Organic Compounds and Managing Compliance with Equipment Leak Standards for VOC, HAP and GHGs**

Develop, audit, implement and manage leak detection and repair programs and monitoring plans for facilities throughout the U.S. in the chemical, refining, gas processing and upstream oil and gas industry sectors. Conduct fugitive equipment component counts supporting emission inventory development. Experience with monitoring surveys using portable analyzers (EPA Method 21) to identify leaks exceeding threshold-based volume concentrations for organic compounds from valves, flanges/connectors, pumps, pressure relief devices, etc. Observe qualitative indications of equipment leaks using optical gas imaging (OGI). Quantify mass emissions of organic compounds (methane, GHG, VOC, ROG, HAP) from fugitive emission components based on emission factors for process streams in gas/vapor, light liquid, heavy liquid and oil/water service. Determine mass emissions of air pollutants from pressure relief devices and process vents using equation of state process simulation and other techniques. Assure compliance with Federal NSPS and NESHAP rules regulating equipment leaks including. Complete HAP potential to emit and major source determinations, including fugitive emissions. Measure ambient or fence line concentrations of target organic compounds using reference sampling and analytical methods. Advise clients in evaluation of emerging fugitive emission measurement methods, including optical and open-path technologies.

- **Air Quality Consulting to the U.S. Petroleum Industry**

Air quality engineering technical and regulatory compliance consulting support to major and independent oil and gas companies and assets from the Alaska North Slope to California, Appalachia, the Mid-Continent, Gulf Coast and the Rockies.

### EDUCATION

- B.S., Petroleum Engineering, University of Wyoming, 1983

### AREAS OF EXPERTISE

- Air Quality Permitting and Regulatory Compliance
- Federal CAA Programs - NSPS & MACT/NESHAP
- State and Local Air Quality Programs throughout the U.S.
- RACT/BACT/LAER
- Hydrocarbon Liquid Storage and Handling, Vapor Recovery, Controls, and Flaring Issues
- Production tank battery adequate design evaluations
- Conventional and Unconventional Crude Oil and Natural Gas Exploration and Production
- Natural Gas Gathering, Treating, and Processing
- Hydrocarbon Processing and Petroleum Refining
- Compliance Planning and Implementation
- Air Quality Compliance Audits and Transactional Due Diligence
- Support to Internal/Outside Counsel in Defense Against Government Civil and Criminal Investigations and Enforcement Actions
- Fugitive Emissions Assessments and Leak Detection and Repair (LDAR)



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- **Legal Support, Multiple Clients and Geographies.**

Nontestimonial technical support to clients' inside and outside legal counsel in a variety of complex civil and criminal litigation matters pertaining to government allegations of federal CAA violations. Routinely support legal counsel in preparing response to information requests pursuant to Section 114 of the Clean Air Act, 42 U.S.C. § 7414 (Section 114 requests) and Grand Jury subpoenas and resolution of EPA, state and local agency enforcement matters.

- **NEPA Support, Oil and Gas.**

Support air quality aspects of EA and EIS development for large geographically dispersed oil and gas development on state and federal lands. Develop point source and fugitive emission inventories for a variety of development activities.

- **Air Quality Permitting for Upstream Crude Oil and Natural Gas Resources, Multiple Clients and Geographies.**

Air quality permitting services to clients producing from large geographically dispersed conventional and unconventional resources in basins throughout the U.S. Experienced with air permitting programs administered by state, local and federal jurisdictions in all petroleum producing states. Minor- and major-source preconstruction NSR permitting (PSD and NNSR), RACT/BACT/LAER determinations, and Title V operating permits. Experienced in permitting programs administered by EPA for stationary sources within Indian Lands.

- **Natural Gas Production, Gathering, Treating, Processing, Compression, Transportation and LNG Liquefaction/Gasification**

Experienced in natural gas production, treating (dehydration and sweetening), NGL extraction, compression, condensate and NGL handling, flares and flare gas recovery systems, process vents, combustion systems and LDAR. Expert in federal CAA and state/local programs affecting the natural gas industry sectors. Practiced in hydrocarbon phase behavior, equation of state process simulators and dynamic models in characterizing process stream composition and properties and air emissions from process vents and combustion systems. Experience with LNG liquefaction and gasification processes.

- **Tank Battery Vapor Collection and Control System Evaluation, Multiple Clients/Assets**

Engineering evaluations of upstream production tank system vapor collection and controls to ensure adequate design to accommodate peak vapor flow conditions during normal operations without venting. Use dynamic model to trend tank system pressure versus time to identify zero cost or cost-effective solutions to eliminate "routine venting" of unburned gases, reduce the volume of vented gas (planned and unplanned nonroutine venting) and improve efficiency of vent systems. Completed independent third-party audits of tank system modeling guidelines and design evaluations for large production assets in Colorado and North Dakota.

- **Federal Clean Air Act Technical Consulting, Hydrocarbon Liquid Storage and Handling, Multiple Clients and Geographies.**

Providing expert consultation in federal CAA and local programs affecting crude oil, condensate and produced water separation, treating and processing, storage and transfer operations in the upstream oil and gas industry sector.

- **Technical Consulting, Methane and GHG**

Methane and GHG emission inventory development pursuant to the federal Mandatory GHG Reporting Program, state emission inventory requirements, corporate metrics reporting, permitting and regulatory compliance and engineering evaluations for numerous producers and operations spanning North America. Expert in quantifying fugitive and point source methane emissions using a combination of direct measurements, sampling and analysis, steady state and dynamic process simulation software tools, published emission factors and other traditional and novel approaches. Gather and manage activity data for extensive and geographically dispersed production assets.

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- **Petroleum Refineries and Terminals, Multiple Clients and States.**

Air quality regulatory compliance consultant to major petroleum refiners and terminal operators in Alaska, California, Washington, Montana, Utah, Colorado, North Dakota, Indiana, Ohio, Texas and the U.S. Virgin Islands. Conducted air quality regulatory compliance audits of refineries and marine terminals.

- **Compliance Self-Evaluations, Third-Party Audits and Transactional Due Diligence Reviews of Oil and Gas Production and Midstream Operations, Multiple Assets.**

Audit team leader and auditor for numerous air quality compliance self-evaluations, third-party audits and transactional due diligence reviews of extensive and geographically-dispersed production and pipeline gathering system assets located on Indian Lands and lands under state and federal jurisdiction across the U.S.

- **Confidential Clients, Legal Support, Bakken (North Dakota).**

Retained by two separate outside law firms representing two Bakken crude oil producers to provide technical support in responding to CAA Section 114 Information Requests issued by EPA Region 8 surrounding design and operation of tank battery vapor collection and control systems.

- **Confidential Client, Air Quality Regulatory Compliance Self-Evaluation**

Retained by a national law firm representing an oil and gas producer operating in seven U.S. states. Conducted a desktop audit encompassing thousands of sites located throughout the midcontinent.

- **Air Quality Compliance Audits, Confidential Clients – Texas.**

In separate matters, retained by outside counsel to conduct self-evaluations of a petroleum refinery, compressor stations and gas processing plants in west Texas under the Texas Audit Privilege Act and an agreement with EPA. Focused on assessment of compliance with NSPS and MACT programs, including Refinery Sector Rule.

- **Third-Party Audit, Confidential Client, Colorado.**

Retained by oil and gas producer to conduct independent third-party audit of engineering evaluations of numerous production tank systems, as required by a Consent Decree.

- **Legal Support, Confidential Client, Major Petroleum Company.**

Retained by outside law firm representing major petroleum refiner to provide consulting support in connection with a grand jury subpoena and investigation by the U.S. DOJ and EPA CID arising out of allegations of noncompliance with federal CAA programs affecting flare gas recovery systems.

- **Transactional Due Diligence, Major Petroleum Company.**

In separate transactions, retained by outside law firm representing potential buyers of two marine terminals.

- **Legal Support, Confidential Client, Major Petroleum Company.**

Retained by outside counsel representing major petroleum company to provide consulting support in connection with an investigation by EPA CID and DOJ in connection with allegations of CAA violations pertaining to large crude oil process tanks and NSPS Subpart Kb at company's crude oil production facilities.

- **Legal Support, Confidential Client, Crude Oil Pipeline Company.**

Worked with client's internal and outside counsel to successfully defend client against state agency enforcement action related to alleged CAA violations of the Organic Liquids Distribution MACT rule at client's crude oil pipeline terminal facilities.

- **Legal Support and Air Quality Compliance Self-Evaluation, Confidential Client, Utah.**

Retained by client's internal counsel to provide consulting assistance in preparation of a response to an EPA Section 114 request related to allegations of CAA violations of major source MACT standards

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and requirements for glycol dehydration units and stationary reciprocating internal combustion engines at five compressor stations operated by client on state and tribal lands in the Uinta Basin.

- **Legal Support, Confidential Client, Upstream Oil and Gas Production Company, Utah.**

Worked with client's internal and outside counsel in successfully defending client against a civil enforcement action by EPA Region 8 and DOJ pursuant to 25 allegations of Clean Air Act violations at three gas gathering pipeline system compressor stations and two gas plants in the Uinta Basin.

- **Legal Support, Confidential Client, Major Oil and Gas Company, West Virginia.**

Supported client's internal and outside counsel and EHS staff to self-assess compliance with air quality standards and regulations and permitting programs administered by the West Virginia DEP for upstream gas production and booster compression sites.

- **Confidential Client, Regulatory Compliance Self-Assessment, Permian Basin, Texas.**

Supported client's external counsel in conducting asset-wide assessment of potential to emit and regulatory applicability determinations related to client's extensive and geographically dispersed Permian Basin production asset.

- **Air Quality Self-Evaluation, Confidential Client, North Dakota and Eastern Montana.**

At the direction of client's outside counsel, supported self evaluation of client's extensive Bakken and Three-Forks crude oil production assets located on the Fort Berthold Indian Reservation under the jurisdiction of EPA Region 8 and numerous sites located on lands under the jurisdiction of the North Dakota Department of Health and Montana Department of Environmental Quality.

- **Confidential Client, Upstream Oil and Gas Production Company, Colorado.**

Worked with client's internal and outside counsel to respond to state agency enforcement action related to allegations of CAA violations pertaining to the oil and gas production, stationary reciprocating internal combustion engine and organic liquids distribution MACT rules.

- **Confidential Client, Compliance Assessment, Oil and Gas Company, Colorado.**

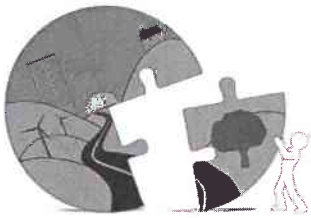
Worked with client's outside counsel to develop a comprehensive review of federal MACT standards relevant to area and major sources comprising a large oil and gas production operation, including numerous well sites, central gathering, treating and processing facilities and ancillary operations.

- **NSPS OOOO Support, San Juan Basin Business Unit.**

Worked with client's engineering and HSE staff to assess working, breathing and flashing losses from production tanks using process simulation (ProMax<sup>®</sup> and E&P Tank). Developed production rate-based VOC emission factors used in NSPS Subpart OOOO applicability determinations.

- **MACT Applicability and Compliance, Multiple Locations, AK North Slope and Cook Inlet.**

Quantified HAP emissions and evaluated other rule applicability criteria for over 40 oil and natural gas production facilities, drill sites and supporting facilities operating on the Alaska North Slope. Evaluated 16 onshore and offshore production facilities in the Cook Inlet of Alaska.



# RIVERSIDE COUNTY PLANNING DEPARTMENT

*Charissa Leach*  
Assistant TLMA Director

## Agency Notice of Availability of a Draft Supplemental Environmental Impact Report

**DATE:** December 16, 2019

**TO:** Responsible Agencies, Organizations, Interested Parties

**STATE CLEARINGHOUSE NO.:** 2014011009

**PROJECT CASE NO./TITLE:** Project Title: San Gorgonio Crossing/Gateway Center Project

**LEAD AGENCY:** Riverside County Planning Department      Contact: Brett Dawson, Project Planner  
4080 Lemon Street, 12<sup>th</sup> Floor      Phone: 951.955.0972  
P.O. Box 1409      Email: BDawson@rivco.org  
Riverside, CA 92502-1409

**ALL COMMENTS MUST BE RECEIVED NO LATER THAN:** 5:00 p.m., January 30, 2020

A DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (Draft Supplemental EIR) No. 534 for the San Gorgonio Crossing Project (PP25337, CZ07799, PM36564, and GPA01079) has been completed and is now available for public review. The Riverside County Board of Supervisors certified the Final EIR for this Project on October 24, 2017. The Final EIR can be found at the following link:

<https://planning.rctlma.org/Home/Planning-Notices/EIR-No-534-San-Gorgonio>

After the Final EIR for this Project was certified, two entities filed legal actions challenging the EIR, which were consolidated and heard by the Riverside Superior Court. On February 7, 2019, in the case titled *Cherry Valley Pass Acres and Neighbors and Environmental Planning Group v. the County of Riverside*, the Court ordered the Respondent County of Riverside (County) to (1) address in its Final EIR the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) include in the Final EIR a further analysis of the Project's projected transportation energy use requirements and, in particular, its overall use of efficient transportation alternatives.

The Court further ordered that (1) the remainder of the Final EIR certified on October 24, 2017, is in full compliance with CEQA and remains certified, and (2) the project approvals are valid and shall remain in place. Therefore, the County has prepared a Draft Supplemental EIR that (1) analyzes the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) provides further analysis of the Project's projected transportation energy use requirements and, in particular, its overall use of efficient transportation alternatives to ensure that the Projects' energy use is not inefficient, wasteful, or unnecessary in accordance with Appendix F. There are no other changes to the project or environmental circumstances that require additional environmental review under CEQA (Public Resources Code Section 21000, et seq.), State CEQA Guidelines (California Code of Regulations [CCR] Title 14 § 15000, et seq.), or the County's rules and regulations.

Riverside Office · 4080 Lemon Street, 12th Floor  
P.O. Box 1409, Riverside, California 92502-1409  
(951) 955-3200 · Fax (951) 955-1811

Desert Office · 38686 El Cerrito Road  
Palm Desert, California 92211  
(760) 863-8277 · Fax (760) 863-7555

The Draft Supplemental EIR contains only the information necessary to make the previous Final EIR adequate for the San Geronio Project. This meets the requirements for supplemental environmental analysis under Section 15163 of the CEQA Guidelines. **Comments should be limited to only the two issue areas outlined above that are being reviewed within this Draft Supplemental EIR.**

**PROJECT LOCATION:**

The San Geronio Crossing Project (Project) is located in Township 2 South, Range 1 West, Section 30, along the north side of Cherry Valley Boulevard and east of the Interstate 10 Freeway (I-10), between the cities of Calimesa and Beaumont, in the unincorporated area of Riverside County, California.

**ISSUES ADDRESSED IN THE DRAFT SUPPLEMENTAL EIR:**

As described above, the Supplemental EIR (1) analyzes the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) provides further analysis of the Project's projected transportation energy use requirements and, in particular, its overall use of efficient transportation alternatives to ensure that the Projects' energy use is not inefficient, wasteful, or unnecessary in accordance with Appendix F. There are no other changes to the project or environmental circumstances that require additional environmental review under CEQA (Public Resources Code Section 21000, et seq.), State CEQA Guidelines (California Code of Regulations [CCR] Title 14 § 15000, et seq.), or the County's rules and regulations.

**LOCATION OF PROJECT DOCUMENTS:**

Copies of the Draft Supplemental EIR and all pertinent and related project documents and technical appendices are available online at:

<http://Planning.rctlma.org> under "Ongoing Projects"

The Draft Supplemental EIR will also be available at the following locations:

Riverside County Planning Department  
4080 Lemon Street, 12th Floor,  
Riverside, CA 92502-1409

Calimesa Public Library  
974 Calimesa Boulevard  
Calimesa CA 92320

Beaumont Public Library  
125 E 8<sup>th</sup> Street  
Beaumont CA 92223

**HOW TO COMMENT:**

Comments on the adequacy of the analysis included in the Draft Supplemental EIR may be made in writing, indicating the section(s) of concern. The project name and number should be noted on all correspondence and the comment should indicate if you would like to be notified of public hearings. Please provide your written response to the Riverside County Planning Department's address shown below by 5:00 pm, January 30, 2020.

**Comments should be limited to only the two issue areas outlined above that are being reviewed within this Draft Supplemental EIR.**

Riverside County Planning Department  
4080 Lemon Street, 12th Floor  
P.O. Box 1409  
Riverside, CA 92502-1409

Attn: Brett Dawson, Project Planner

**RECIRCULATED PORTIONS OF  
FINAL ENVIRONMENTAL IMPACT REPORT  
AND MITIGATION MONITORING AND REPORTING PROGRAM**

**DEVIL'S GATE RESERVOIR SEDIMENT REMOVAL  
AND MANAGEMENT PROJECT  
PASADENA, CA  
(LOS ANGELES COUNTY)**

**State Clearinghouse No. 2011091084**

*Prepared for:*

**LOS ANGELES COUNTY  
FLOOD CONTROL DISTRICT**  
P.O. Box 1460  
Alhambra, California 91802-1460



*Prepared by:*



1801 E. Park Court Place, Building B  
Santa Ana, California 92701

July 2017



## **INTRODUCTION**

### **Executive Summary**

The Los Angeles County Flood Control District (LACFCD), as lead agency under the California Environmental Quality Act (CEQA), is recirculating limited portions of the Devil's Gate Sediment Removal and Management Project Final EIR (State Clearinghouse No. 2011091084) as the result of a judgment from the Superior Court of the County of Los Angeles. The judgment found that the Final EIR complied with CEQA on all but three narrow grounds. Accordingly, and as explained in more detail below, the LACFCD is recirculating only those sections of the Final EIR for the Project, for Alternative 3, Configuration D (Approved Project), and for Alternative 5 (Haul Route Alternative) related to: 1) the 1:1 mitigation ratios in Mitigation Measures BIO-6, -7, and -8; 2) the imposition of Mitigation Measures BIO-1 through 8 on the proposed Devil's Gate Water Conservation Project, should such a project go forward, to reduce potential cumulative impacts for this Project; and 3) the requirement, in Mitigation Measure AQ-1, that sediment removal dump trucks meet Environmental Protection Agency's emission standards for Model Year 2010 or later. The project approval by the LACFCD remains unchanged.

### **Project Background**

#### **Devil's Gate Reservoir and Dam - History and Purpose**

The Devil's Gate Dam and Reservoir were built in 1920 to provide vital flood protection to Pasadena, South Pasadena, and Los Angeles, as well as the 110 Freeway, and numerous facilities along the Arroyo Seco, including the Rose Bowl and Brookside Park. The purpose of the Dam is to retain stormwater runoff, sediment and debris during storms to prevent high water flow from overwhelming the flood control channel, and then to release the stormwater in a safe, controlled manner to the Arroyo Seco Channel. During major storms exceeding the capacity of the Reservoir, the Dam is designed so the Reservoir water level rises until flow discharges through the spillway ports and then over the spillway.

#### **Reduction in Devil's Gate Dam Capacity**

Each reservoir has its own unique design debris event ("DDE"); the DDE for Devil's Gate Dam is approximately 2 million cubic yards ("mcy"). The LACFCD's sediment removal criterion for dams was established to maintain reservoir capacity of two DDEs below a dam's spillway elevation. This ensures that there is always sufficient reservoir capacity to maintain an adequate level of downstream flood protection. With two DDEs, the LACFCD has determined there is likely to be sufficient reservoir capacity to successfully handle a design level storm, or several smaller but significant debris events, and still maintain capacity of at least one DDE during the lengthy environmental and construction processes to remove the debris, further protecting public safety. Accordingly, to ensure adequate flood protection the required reservoir capacity for Devil's Gate Dam is 4.0 mcy, or two DDEs, below the Dam's spillway elevation of 1,040.50 feet.

The 2009 Station Fire was the largest fire in the recorded history of the Angeles National Forest (since 1892) and the 12th largest fire in California since 1933. The Station Fire burned over 160,000 acres, leaving vast areas of the San Gabriel Mountains denuded of vegetation and thus susceptible to sediment flows. Indeed, approximately 68 percent of the watershed, including nearly all of the undeveloped watershed area, that drains to the Reservoir was burned, creating perfect conditions for subsequent storms to deposit massive amounts of sediment into the Reservoir. Storms in the year following the

Station Fire did just that, pouring approximately 1.3 mcy of sediment into the Reservoir. This sediment alone reduced the capacity at the Dam to less than one DDE, significantly increasing the risk of serious flooding from subsequent storms. Indeed, due to the Dam's reduced capacity, a single 50-year storm event would result in a large volume of storm water and sediment overflowing the Dam's spillway. As a result, in October 2010, the State Division of Safety of Dams recommended removal of sediment behind the Dam, and restoring Reservoir capacity to minimize flood risk downstream.

#### Preparation of Devil's Gate Sediment Removal and Management Project EIR

On September 28, 2011, the LACFCD issued a Notice of Preparation/Initial Study of an EIR for a proposed Project to remove "up to 4 million cubic yards of sediment from the reservoir behind Devil's Gate Dam to restore it to its current design standard, (capacity for two DDEs below the spillway elevation of 1040.5 ft.) and establish a reservoir configuration more suitable for routine maintenance activities including sediment management." On October 5, and 15, 2011 the LACFCD held public meetings to receive comments on the scope of the project.

The Draft EIR was released for public comment and review on October 23, 2013 and was subject to an extended 90-day public comment period. On November 6, 14, and 16, 2013 the LACFCD held public hearings to receive comments on the Draft EIR. During this public comment period, LACFCD received 251 comment letters from residents, local community groups, and local, State and Federal agencies.

The Final EIR, consisting of the Draft EIR and Technical Appendices, responses to all 251 comment letters submitted on the Draft EIR, and clarifications and modifications to the Draft EIR, was released on October 20, 2014.

#### Certification of EIR and Approval of Devil's Gate Sediment Removal and Management Project

On November 12, 2014, the Los Angeles County Board of Supervisors, acting as the Governing Board of the LACFCD, certified the Final EIR and approved the Environmentally Superior Alternative (Alternative 3, Configuration D, Option 2) in conjunction with Alternative 5, the Haul Route Alternative, which further reduced traffic impacts. Under Alternative 3, Configuration D, the sediment removal activities, including removal method, sediment disposal, truck routes, and project schedule, would be the same as the Project, but excavation activities would remove approximately 2.4, rather than 2.9, mcy of current excess sediment in the Reservoir, in addition to any additional sediment received during the implementation of the Project.

#### Litigation

On December 11, 2014, the Arroyo Seco Foundation and the Pasadena Audubon Society ("Petitioners") filed a Petition for Writ of Mandate challenging the adequacy of the Final EIR. While Petitioners raised many claims, at the conclusion of the litigation, on April 17, 2017, Judge James C. Chalfant of the Superior Court of the County of Los Angeles found that the Final EIR complied with CEQA on all but three narrow grounds. Accordingly, the Court denied Petitioners' request that the Project approvals be set aside and instead ordered the County and the LACFCD to only set aside and recirculate limited portions of the Final EIR.

Specifically, the Court ordered that the County and LACFCD recirculate portions of the Final EIR to:



- Provide substantial evidence to support the 1:1 mitigation ratios in Mitigation Measures BIO-6, -7, and -8, and therefore the Final EIR's conclusion that the Project's biological resource impacts will be reduced to less than significant levels; and
- Confirm that Mitigation Measures BIO-1 through BIO-8 will be applied as mitigation to the Devil's Gate Water Conservation Project, should such a project go forward, that will reduce potential cumulative impacts for this Project; and
- Modify Mitigation Measure AQ-1 to read as follows: "LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use only sediment removal dump trucks that meet EPA's emission standards for Model Year 2010 or later."

These revisions have been made to the Recirculated Portions of the Final EIR. As the Court found all other aspects of the original Final EIR to be in compliance with CEQA, the Recirculated Portions of the Final EIR include only those pages of the original Final EIR which require revision in order to comply with the Court's order. In addition, revisions have also been made to pages associated with Alternatives 3 and 5 to address options from those alternatives that were included in the approved project. The revised pages included in this Recirculated Portions of the FEIR are listed below:

- Pages ES12-16 (Executive Summary)
- Pages 83-85 (Section 3.5.6 AIR QUALITY – Impacts and Mitigation)
- Page 88 (Section 3.5.6 AIR QUALITY – Impacts and Mitigation)
- Page 90 (Section 3.5.6 AIR QUALITY – Impacts and Mitigation)
- Pages 130-134 (Section 3.6.6 BIOLOGICAL RESOURCES – Impacts and Mitigation)
- Page 431 (Section 4.6.3 ALTERNATIVE 3, CONFIGURATION D – Impacts Analysis and Comparison to Proposed Project)
- Pages 445-452 (Section 4.6.3 ALTERNATIVE 3, CONFIGURATION D – Impacts Analysis and Comparison to Proposed Project)
- Page 553 (Section 4.8.3 ALTERNATIVE 5, CONFIGURATION A, HAUL ROUTE ALTERNATIVE – Impact Analysis and Comparison to Proposed Project)
- Pages 561-564 (Section 4.8.3 ALTERNATIVE 5, CONFIGURATION A, HAUL ROUTE ALTERNATIVE – Impact Analysis and Comparison to Proposed Project)
- Pages 653-656 (Section 6.0 REFERENCES)
- Page 673 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS – Executive Summary)
- Page 676 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS – Executive Summary)
- Pages 690-694 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS)
- Page 706 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS)
- Page 707 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS)
- Page 743 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS)
- Pages 748-750 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS)
- Page 764 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS)
- Page 767 (Section 8.0 CLARIFICATIONS AND MODIFICATIONS)
- Pages 2054-2059 (Section 10.0 MITIGATION MONITORING AND REPORTING PROGRAM)
- Appendix L – Devils Gate CEQA Mitigation Site Comparison

In the sections of the Final EIR that follow, additions to the text are shown as underlined and deletions to the text are shown as ~~strike through~~. Text within the Recirculated Portions of the EIR that appears without strikethrough or underline indicates that it is the same as in the Final EIR.

The Recirculated Portions of the Final EIR will be circulated for agency and public review and comment for 45 days (July 24, 2017 through September 7, 2017).

Hardcopies of the Recirculated Portions of the Final EIR are available for public review during regular business hours at the locations listed below:

- Linda Vista Library, 1281 Bryant Street, Pasadena, CA
- Pasadena Central Library, 285 East Walnut Street, Pasadena, CA
- San Rafael Branch Library, 1240 Nithsdale Road, Pasadena, CA
- Altadena Library District, 600 East Mariposa Street, Altadena, CA
- Bob Lucas Memorial Library, 2659 Lincoln Avenue, Altadena, CA
- La Cañada Flintridge Library, 4545 North Oakwood Avenue, La Cañada Flintridge, CA
- Irwindale Public Library, 5050 Irwindale Avenue, Irwindale, CA
- Sun Valley Library, 7935 Vineland Avenue, Sun Valley, CA
- County of Los Angeles Department of Public Works, 900 South Fremont Avenue, Alhambra, CA - Available at the Water Resources Division's 2<sup>nd</sup> Floor Public Counter

The Recirculated Portions of the Final EIR can also be viewed online at <http://www.LASedimentManagement.com/DevilsGate>

Written comments must be postmarked by September 7, 2017 and should be addressed to:

County of Los Angeles  
Department of Public Works  
Water Resources Division  
Attn: Reservoir Cleanouts Program  
P.O. Box 1460  
Alhambra, CA 91802-1460

Pursuant to CEQA Guideline section 15088.5(f)(2), during the July 24, 2017 through September 7, 2017 public comment period, the LACFCD will respond only to comments to the information and analysis contained in the Recirculated Portions of the Final EIR.

The 90-day public review and comment period on the original Draft EIR closed on January 21, 2013 and written responses to all comments pertaining to those portions of the EIR that were not recirculated are contained in the Final EIR released on October 20, 2014.

Upon completion of the 45-day public review period, written responses to all comments to the Recirculated Portions of the Final EIR will be prepared and considered by the Los Angeles County Board of Supervisors for hearing and public comment.

## **Executive Summary**

**Pages ES12 – ES16**

**Table ES-0-1: Summary of Potential Significant Impacts and Mitigation Measures**

Potential Impacts	Mitigation Measures	Level of significance after mitigation
<b>Aesthetics</b>		
Aesthetics-1: Potentially significant impact to scenic vistas will occur from sediment removal activities during the sediment removal phase.	No feasible mitigation available. The less than significant impacts during reservoir management will be further reduced through the implementation of Mitigation Measures MM BIO-6, MM BIO-7, and MM BIO-8.	Impact remains significant and unavoidable.
Aesthetics-3: Potentially significant impact to visual characteristics will occur from sediment removal activities during the sediment removal phase.	No feasible mitigation available. The less than significant impacts during reservoir management will be further reduced through the implementation of Mitigation Measures MM BIO-6, MM BIO-7, and MM BIO-8	Impact remains significant and unavoidable.
<b>Air Quality</b>		
Air Quality-1: Conflict with the implementation of SCAQMD air quality management plan due to sediment removal emissions of NO <sub>x</sub> exceeding the Daily Regional Threshold will result in a significant impact.	<b>MM AQ-1:</b> LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use only sediment removal dump trucks that meet the EPA's emission standards for Model Year <u>2010</u> <del>2007</del> or later. <b>MM AQ-2:</b> LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment.	Less than Significant
Air Quality-2 and Air Quality-3: Sediment removal emissions of NO <sub>x</sub> will exceed the SCAQMD Daily Regional Threshold, resulting in a significant impact to an air quality standard.	See MM AQ-1 and MM AQ-2.	Less than Significant
Air Quality 6: Sediment removal emissions of NO <sub>x</sub> will exceed the SCAQMD Daily Regional Threshold, resulting in a cumulatively significant impact.	See MM AQ-1 and MM AQ-2.	Less than Significant
<b>Biological Resources</b>		
Biology-1: Removal of habitat during sediment removal will result in a potentially significant impact to five special status wildlife species (least Bell's vireo, yellow warbler, southwestern pond turtle, coast range newt, and two-striped garter	<b>MM BIO – 1:</b> A qualified biological monitor shall be present during initial ground- or vegetation-disturbing project-related activities to provide measures and monitor for wildlife in harm's way. This includes initial ground- or vegetation-disturbing project-related activities at the annual start of each year of sediment removal or maintenance activities. Following initial project-related activities, a qualified monitoring biologist shall be present as necessary to	Less than significant

Potential Impacts	Mitigation Measures	Level of significance after mitigation
<p>snake) and nesting native birds and roosting bats.</p>	<p>maintain the implemented protection measures and monitor for additional species in harm's way. These protection measures shall include, as appropriate: redirecting wildlife, identifying areas that may require exclusionary devices (e.g., fencing), or capturing and relocating wildlife outside the work area. Any captured species shall be relocated to adjacent appropriate habitat that is contiguous to adjacent habitat and not impacted by project-related disturbance activities.</p> <p><b>MM BIO – 2:</b> Within 90 days prior to ground-disturbing activities, a sensitive species educational briefing shall be conducted by a qualified biologist for construction personnel. The biologist will identify all sensitive resources that may be encountered onsite, and construction personnel will be instructed to avoid and report any sightings of sensitive species to LACFCD or the monitoring biologist. Educational briefings shall be repeated annually for the duration of the sediment removal.</p> <p><b>MM BIO – 3:</b> Within 90 days prior to ground-disturbing activities, a preconstruction survey shall be conducted by a qualified biologist for the presence of any sensitive species in harm's way, including coast range newt, the southwestern pond turtle, and the two-striped garter snake. If sensitive species are observed in harm's way, the qualified biologist will develop and implement appropriate protection measures for that species. These protection measures shall include, as appropriate: redirecting the species, constructing exclusionary devices (e.g., fencing), or capturing and relocating wildlife outside the work area. Preconstruction surveys shall be repeated annually for the duration of the sediment removal. Observations of special status species made during these surveys shall be recorded onto a CNDDDB field data sheet and submitted to CDFW for inclusion into the CNDDDB.</p> <p><b>MM BIO – 4:</b> LACFCD, in consultation with a qualified biologist, will employ bird exclusionary measures (e.g., mylar flagging) prior to the start of bird breeding season to prevent birds nesting within established boundaries of the project. Prior to commencement of sediment removal activities within bird breeding season (March 1-August 31), a preconstruction bird nesting survey shall be conducted by a qualified biologist for the presence of any nesting bird within 300 feet of the construction work area. The surveys shall be conducted 30 days prior to the disturbance of suitable nesting habitat by a qualified biologist with experience in conducting nesting bird surveys. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to</p>	

Potential Impacts	Mitigation Measures	Level of significance after mitigation
	<p>the initiation of clearance/construction work. Preconstruction surveys shall be repeated annually for the duration of the sediment removal.</p> <p>If an active nest is found, the qualified biologist will develop and implement appropriate protection measures for that nest. These protection measures shall include, as appropriate, construction of exclusionary devices (e.g., netting) or avoidance buffers. The biologist shall have the discretion to adjust the buffer area as appropriate based on the proposed construction activity, the bird species involved, and the status of the nest and nesting activity; but shall be no less than 30 feet. Work in the buffer area can resume once the nest is determined to be inactive by the monitoring biologist.</p> <p><b>MM BIO – 5:</b> Within 30 days prior to commencement of vegetation or structure removal activities, a preconstruction bat survey shall be conducted by a qualified biologist for the presence of any roosting bats. Acoustic recognition technology shall be used if feasible and appropriate. If either a bat maternity roost or hibernacula (structures used by bats for hibernation) are present, a qualified biologist will develop and implement appropriate protection measures for that maternity roost or hibernacula. These protection measures shall include, as appropriate: safely evicting non-breeding bat hibernacula, establishment of avoidance buffers, or replacement of roosts at a suitable location. These measures shall also include as appropriate:</p> <ul style="list-style-type: none"> <li>▪ To the extent feasible, trees that have been identified as roosting sites shall be removed or relocated between October 1 and February 28.</li> <li>▪ When trees must be removed during the maternity roost season (March 1 to September 30), a qualified bat specialist shall conduct a preconstruction survey to identify those trees proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats.</li> <li>▪ Trees identified as potentially supporting an active nursery roost shall be inspected by a qualified biologist no greater than 7 days prior to tree disturbance to determine presence or absence of roosting bats.</li> <li>▪ Trees determined to support active maternity roosts will be left in place until the end of the maternity season (September 30).</li> </ul> <p>If bats are not detected in a tree, but the qualified biologist determined that roosting bats may still be present, trees shall be removed as follows:</p> <ul style="list-style-type: none"> <li>○ Pushing the tree down with heavy machinery instead of</li> </ul>	

Potential Impacts	Mitigation Measures	Level of significance after mitigation
	<p>                     felling the tree with a chainsaw                     <ul style="list-style-type: none"> <li>○ First pushing the tree lightly 2 to 3 times with a pause of 30 seconds in between each nudge to allow bats to become active, then pushing the tree to the ground slowly</li> <li>○ Allowing the tree to remain in place for 24 to 48 hours until inspected by the qualified biologist for presence or absence of roosting bats</li> </ul>                     The qualified biologist shall document all bat survey, monitoring, and protection measure activities and prepare a summary report for LACFCD.                 </p>	
<p>Biology-2: A significant impact will occur to riparian habitats and sensitive habitats.</p>	<p><b>MM BIO – 6:</b> Riversidean Alluvial Fan Sage Scrub habitat shall be restored and/or enhanced at a 1:1 ratio by acreage. <u>LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of this sensitive habitat. Measures to achieve not less than a 1:1 replacement, or no net loss, of Riversidean Alluvial Fan Sage Scrub shall include but not be limited to the following:</u></p> <ul style="list-style-type: none"> <li>• <u>Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreage of Riversidean Alluvial Fan Sage Scrub.</u></li> <li>• <u>Identify and map the selected mitigation Areas where Riversidean Alluvial Fan Sage Scrub will be enhanced or restored shall be mapped using aerial photographs. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.</u></li> <li>• <u>Select offsite reference sites where Riversidean Alluvial Fan Sage Scrub is the established plant community. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, and native plant species richness (number of different plant species).</u></li> <li>• <u>Prepare and implement a site-specific Habitat Restoration Plan</u></li> </ul>	<p>Less than Significant</p>

Potential Impacts	Mitigation Measures	Level of significance after mitigation
	<p><u>that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:</u></p> <ul style="list-style-type: none"> <li>○ <u>Site-specific container plant (if applicable) and seed palettes,</u></li> <li>○ <u>Irrigation plan,</u></li> <li>○ <u>Nonnative and invasive plant species removal,</u></li> <li>○ <u>Maintenance and monitoring schedule,</u></li> <li>○ <u>Qualitative and quantitative monitoring methodologies,</u></li> <li>○ <u>Selection criteria of reference sites,</u></li> <li>○ <u>Performance standards of the mitigation sites,</u></li> <li>○ <u>Monitoring reports and annual reports schedule,</u></li> <li>○ <u>Mitigation long-term management plan, and</u></li> <li>○ <u>Funding description for implementation and long-term management.</u></li> </ul> <ul style="list-style-type: none"> <li>• <u>Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites and to show that not less than a 1:1 replacement of sensitive habitats has been achieved.</u></li> <li>• <u>Quantitatively monitor the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of Riversidean Alluvial Fan Sage Scrub has been achieved.</u></li> <li>• <u>Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:</u> <ul style="list-style-type: none"> <li>○ <u>Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,</u></li> <li>○ <u>Add soil amendments if problem soils may be</u></li> </ul> </li> </ul>	



Potential Impacts	Mitigation Measures	Level of significance after mitigation
	<p><u>inhibiting plant growth,</u></p> <ul style="list-style-type: none"> <li>○ <u>Replant if plant survival is low or to increase plant species cover or diversity,</u></li> <li>○ <u>Install different plant species for plant species which are not surviving, and</u></li> <li>○ <u>Close trails or install barriers if human caused impacts are damaging the mitigation sites.</u></li> </ul> <ul style="list-style-type: none"> <li>• <u>Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.</u></li> <li>• <u>Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.</u></li> </ul> <p><b>MM BIO – 7:</b> <u>Within 90 days prior to ground-disturbing activities, a qualified biologist shall conduct a tree survey within the project footprint, to identify native city-protected trees that would will be removed or potentially affected by the Proposed Project, and native city-protected trees that can be avoided, and native city-protected trees that will require root zone protection. LACFCD would will replace native city-protected trees that cannot be avoided. The replacement is expected to be at a up to 1:1 ratio by canopy acreage. The biological monitor shall implement measures to protect the root zone of oak trees that may be impacted immediately adjacent to the project site and along access roads. The acreage occupied by the canopies of the native city-protected trees to be removed will determine the appropriate level of tree replacement. LACFCD shall identify tree replacement areas that are no less than the acreage of the native city-protected tree canopies to be removed. Priority for tree replacement locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed. The number of replacement trees installed by LACFCD will be greater than the number of trees to be removed should the replacement tree</u></p>	

Potential Impacts	Mitigation Measures	Level of significance after mitigation
	<p><u>be smaller and younger than the tree to be removed. LACFCD shall monitor the survival of the replacement trees for 5 years and replace those that do not survive within the monitoring period, ensuring that not less than 1:1 ratio of replacement, or no net loss, has been achieved.</u></p> <p><b>MM BIO – 8:</b> A combination of onsite and offsite habitat restoration, enhancement, and exotic <u>plant</u> removal shall be implemented by LACFCD at a 1:1 ratio for impacted <u>riparian habitat</u>, sensitive <u>natural communities</u>, <del>habitat</del> and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic <u>plant</u> species removal. Non-native, weedy habitats within the basin shall be utilized whenever possible as mitigation sites. <u>LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters. Measures to achieve not less than a 1:1 replacement, or no net loss, of riparian habitat, sensitive natural communities, and jurisdictional waters shall include but not be limited to the following:</u></p> <ul style="list-style-type: none"> <li>• <u>Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub) and jurisdictional waters (federally protected wetlands).</u></li> <li>• <u>Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.</u></li> <li>• <u>Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance</u></li> </ul>	

Potential Impacts	Mitigation Measures	Level of significance after mitigation
	<p><u>standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.</u></p> <ul style="list-style-type: none"> <li>• <u>Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:</u> <ul style="list-style-type: none"> <li>○ <u>Site-specific container plant and seed palettes,</u></li> <li>○ <u>Irrigation plan,</u></li> <li>○ <u>Nonnative and invasive plant species removal,</u></li> <li>○ <u>Maintenance and monitoring schedule,</u></li> <li>○ <u>Qualitative and quantitative monitoring methodologies,</u></li> <li>○ <u>Selection criteria of reference sites,</u></li> <li>○ <u>Performance standards of the mitigation sites,</u></li> <li>○ <u>Monitoring reports and annual reports schedule,</u></li> <li>○ <u>Mitigation long-term management plan, and</u></li> <li>○ <u>Funding description for implementation and long-term management.</u></li> </ul> </li> <li>• <u>Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.</u></li> <li>• <u>Quantitatively This mitigation measure shall be monitored for success for five years following implementation the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.</u></li> </ul>	

Potential Impacts	Mitigation Measures	Level of significance after mitigation
	<ul style="list-style-type: none"> <li>• <u>Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:</u> <ul style="list-style-type: none"> <li>○ <u>Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,</u></li> <li>○ <u>Add soil amendments if problem soils may be inhibiting plant growth,</u></li> <li>○ <u>Replant if plant survival is low or to increase plant species cover or diversity,</u></li> <li>○ <u>Install different plant species for plant species which are not surviving, and</u></li> <li>○ <u>Close trails or install barriers if human caused impacts are damaging the mitigation sites.</u></li> </ul> </li> <li>• <u>Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.</u></li> <li>• <u>Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.</u></li> <li>• <u>Submit a A-report of the monitoring results shall be submitted annually, during the five years following implementation of the restoration and enhancement activities at the mitigation sites, to resource agencies as required by the Section 401 Certification, Section 404 permit, and a Streambed Alteration Agreement until the mitigation sites have met the performance standards.</u></li> </ul>	
Biology-3: A significant impact will occur to wetlands.	See MM BIO-8, above.	Less than significant

Potential Impacts	Mitigation Measures	Level of significance after mitigation
Biology-4: A significant impact will occur to wildlife nursery sites.	See MM BIO-1 through MM BIO-8, above.	Less than significant
Biology-5: A significant impact will occur due to removal of native trees from the Proposed Project site.	See MM BIO-7, above.	Less than significant
<b>Cultural Resources</b>		
Cultural-2: A significant impact will occur if sediment removal or reservoir management activities uncover unknown archaeological resources.	<b>MM CUL-1:</b> If sediment removal or reservoir management activities exceed the depth of the historic flood deposits and encounter native sediments, these activities will be monitored by a qualified archaeologist. In the event this occurs and historic or archaeological materials are observed, the excavation in the proximity of the discovery should be diverted until a qualified archaeologist and/or paleontologist evaluates the discovery.	Less than significant
Cultural-3: A significant impact will occur if sediment removal or reservoir management activities uncover unknown paleontological resources.	<b>MM CUL-2:</b> If sediment removal or reservoir management activities exceed the depth of the historic flood deposits and encounter native sediments, these activities will be monitored by a qualified paleontologist. In the event that this occurs and paleontological materials are observed, the excavation in the proximity of the discovery should be diverted until a qualified paleontologist evaluates the discovery.	Less than significant
Cultural-4: A significant impact will occur if sediment removal or reservoir management activities uncover human remains.	<b>MM CUL-3:</b> In the event human remains are discovered, all work in the area must be halted until the County Coroner identifies the remains and makes recommendations regarding their appropriate treatment pursuant to PRC Section 5097.98.	Less than significant
<b>Land Use and Planning</b>		
Land Use-1: A significant impact will be associated with recreational activities coexisting with flood management and water conservation, as implementation of sediment removal and reservoir management under both management options will result in temporarily restricted access to portions of designated trails and indirect impacts to existing recreation uses associated with construction activities.	<b>MM LAN-1:</b> Temporary impacts to designated recreational facilities and trails shall be minimized through advance communication and redirection to the nearest facility in the vicinity of the Proposed Project. Prior to completion of final plans and specifications, the LACFCD shall review the plans and specifications to ensure that they contain proper language requiring that signs be posted at the nearby parking lots and trailheads at least one month in advance of sediment removal activities.	Less than significant

**Section 3.5.6 AIR QUALITY – Impacts and Mitigation**

**Pages 83 – 85**

construction" as the most representative EMFAC2011 vehicle category for the sediment disposal trucks and generated an aggregate average emission factor for vehicle speeds 5 miles per hour (mph) to 45 mph for surface street mileage and 50 mph to 70 mph for highway mileage.

### **Off-Road Equipment Emissions**

Off-road equipment brake horsepower and emission factors were obtained from the CalEEMod Users Guide. Since CalEEMod uses 2007OFFROAD default load factors and CARB has released an updated load factor list which demonstrates that, for most equipment types, the 2007OFFROAD model will result in a fairly significant overestimation of emissions; this AQR uses equipment load factors from the Carl Moyer Program Guidelines (CARB 2013).

### **Employee Vehicle Emissions**

To generate expected exhaust emissions, this AQR used CARB's EMFAC2011 Web-Based Data Access as mentioned in the on-road trucks section. In order to more accurately represent the type of vehicles used by the potential employee work pool, a weighted average emission factor was generated using 69 percent of the pool using light-duty automobiles and the rest using light-duty trucks. The percentages were derived from the distributions of VMT from EMFAC2011.

### **Fugitive Dust Emissions**

Emissions of PM<sub>10</sub> and PM<sub>2.5</sub> from fugitive sources were calculated using various methods. Fugitive dust from excavation activities, grading, and material loading were calculated using EPA's AP-42 methods (USEPA 1995).

### **Localized Significance Thresholds**

The SCAQMD's LST methodology was developed to be used as a tool to assist lead agencies to analyze localized impacts associated with project-specific level proposed projects. The LST methodology and associated mass rates are not designed to evaluate localized impacts from mobile sources traveling over the roadways. The emissions used for the purpose of LST analysis include only onsite activities.

### **3.5.6 Impacts and Mitigation**

#### **AIR QUALITY-1** *Conflict with or obstruct implementation of the applicable air quality plan.*

Typically, assessments for air quality plan consistency use four criteria for determining project consistency with the current AQMP. The first and second criteria are from the SCAQMD. According to the SCAQMD, two key indicators of AQMP consistency are: (1) whether the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and (2) whether the project will exceed the assumptions in the AQMP based on the year of project buildout and phase (SCAQMD 2006). The third criterion is compliance with the control measures in the AQMP. The fourth criterion is compliance with the SCAQMD regional thresholds.

## Sediment Removal/Reservoir Management

### *Contribution to Air Quality Violations*

As shown below in the impact discussions in AIR QUALITY-2 and AIR QUALITY-4, sediment removal activities have the potential to violate an air quality standard or contribute substantially to an existing or projected air quality violation. This is due to emissions of NO<sub>x</sub> exceeding the Daily Regional Thresholds during sediment removal, resulting in a potentially significant impact. Use of sediment removal dump trucks that meet EPA's emission standards for Model Year 2010 or later ~~2007~~—and use of off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment, would result in a reduction of NO<sub>x</sub> emissions to less than the SCAQMD Regional Threshold for NO<sub>x</sub>. As EPA's NO<sub>x</sub> standard was phased-in for diesel engines between 2007 and 2010, use of sediment haul trucks that are Model Year 2010 or later will assure 100 percent compliance with EPA's NO<sub>x</sub> standard. Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of NO<sub>x</sub> emissions to less than the SCAQMD Regional Threshold for NO<sub>x</sub>. Therefore, impacts during sediment removal will be less than significant.

As shown below in the impact discussions in AIR QUALITY-2 and AIR QUALITY-4, reservoir management activities under both options will not violate any air quality standards or contribute substantially to any existing or projected air quality violations; therefore, the Proposed Project during reservoir management will be consistent with the first indicator. No significant impact would occur under either reservoir management options.

### *AQMP Assumptions*

One way to assess project compliance with the AQMP assumptions is to ensure that the population density and land use are consistent with the growth assumptions used in the air plans for the air basin. According to CARB transportation performance standards, the rate of growth in vehicle miles traveled (VMT) and trips should be held to the rate of population growth (SCAQMD 2006). Compliance with this performance standard is one way suggested by CARB of showing compliance with the growth assumptions used in the AQMP. If the total VMT generated by the Proposed Project at buildout is at or below that predicted by the AQMP, then the Proposed Project's mobile emissions are consistent with the AQMP. It is assumed that the existing and future pollutant emissions computed in the AQMP were based on land uses from area general plans.

The Proposed Project under sediment removal and both reservoir management options does not create any overall population growth and therefore has no effect on growth assumptions used in the latest SCAQMD AQMP (SCAQMD 2012). Total long-term VMT generated by the Proposed Project is related to management activities and is considered minimal and will not affect consistency with the AQMP.

### Mitigation Measures

**MM AQ-1:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use only sediment removal dump trucks that meet EPA's emission standards for Model Year 2010 ~~2007~~ or later.

**MM AQ-2:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment.



### Residual Impacts After Mitigation

Implementation of these mitigations would reduce the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal phase to a level of less than significant. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

Reservoir management activities under both options will not violate an air quality standard or contribute substantially to an existing or projected air quality violation; therefore, the Proposed Project during reservoir management will be consistent with the first indicator. No significant impact would occur under either reservoir management option.

**AIR QUALITY-2** *Violate an air quality standard or contribute substantially to an existing or project air quality violation.*

### Sediment Removal

Emissions will be related to the off-road equipment used to remove the sediment, including four front loaders with 4-cubic-yard buckets, two bulldozers, an excavator, a grader, water truck, and sorters/crushers. In addition, disposal trucks with 16 to 20 cubic yards of capacity are proposed to haul approximately 7,650 cubic yards of sediment per day. Removal of the sediment, vegetation, trees, and organic debris is expected to require an average of 50 truck trips per hour, with an estimated maximum of 425 truck round trips per day during excavation activities. The sediment disposal trucks will dispose of material either to the east and placed at the primary disposal site locations (the Waste Management Facility in Azusa, the Vulcan Materials Reliance Facility in Irwindale or the Manning Pit SPS in Irwindale) or to the west and placed in one of the facilities in Sun Valley. Removed vegetation and organic debris will be hauled to Scholl Canyon Landfill, located in the City of Glendale. It is estimated that for approximately three weeks during the first year of the Proposed Project, approximately 50 percent of the total trucking will be green waste debris trucked to the green waste facility at Scholl Canyon; and the remaining 50 percent of trucking will be sediment that will be distributed to the other sites. After the first year, during the first week approximately 25 percent of the total trucking will be green waste debris trucked to the Scholl Canyon Landfill; and the remaining 75 percent of trucking will be sediment distributed to the other sites. For the five years of sediment removal, it is estimated that for the total trips, approximately 3 percent will go to the Scholl Canyon Landfill, 78 percent will go to the Irwindale sites, and 19 percent will go to the Sun Valley sites.

Construction activities emissions, including dust emissions from soil disturbance and combustion pollutants from onsite construction equipment, from offsite trucks hauling sediment material, and from employees working on the Proposed Project would create a temporary addition of pollutants to the local airshed. These emissions were estimated using the following assumptions and methods.

Table 3.5-6: Unmitigated Sediment Removal Emissions provides a summary of the unmitigated emission estimates for sediment removal activity. Details of the air quality calculations are included in Appendix B.

**Section 3.5.6 AIR QUALITY – Impacts and Mitigation**

**Page 88**

- For all earth-moving activity within 100 feet of property lines, maintain soil moisture content at a minimum of 12 percent, as determined by American Society for Testing and Materials (ASTM) method D-2216 or other equivalent approved method.

As shown in Table 3.5-7 below, use of sediment removal dump trucks that meet EPA's emission standards for Model Year 2010 or later 2007 and use of off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment would result in a reduction of the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal to less than the SCAQMD Regional Threshold for NO<sub>x</sub>. Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of NO<sub>x</sub> emissions and will reduce the NO<sub>x</sub> emissions to a level of less than significant for the sediment removal phase.

**Table 3.5-1: Sediment Removal Emissions with Model 2010 or later 2007 Sediment Removal Trucks and Tier 3 Off-road Equipment**

Category	Maximum Daily Emissions (lbs/d)				
	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Off-Road	4.7	33.99	22.05	22.60	2.15
On-Road Trucks	7.15	34.87	18.90	11.07	0.98
Onsite Idling	0.44	1.89	2.48	00.01	0.01
Employees	0.07	2.44	0.24	00.00	0.00
Fugitive	0.00	0.00	0.00	55.46	0.89
Project Maximum Daily	12.4	73.2	81.7	110.5	5.2
SCAQMD Daily Threshold	75.00	550.00	100.00	150.00	55.00
<b>Exceeds Threshold?</b>	No	No	No	No	No

### Reservoir Management

Emissions will be related to the off-road equipment used for reservoir management under both options, including four front loaders with 2-cubic-yard buckets, one bulldozer, an excavator, a grader, water truck, and sorters/crushers. Removal of the sediment, vegetation, trees, and organic debris is expected to require an estimated 200 to a maximum of 300 truck trips per day. It is estimated that during the first week approximately 25 percent of the debris will be green waste trucked to the Scholl Canyon Landfill, and the remaining 75 percent of trucking will be sediment distributed to the other sites. During reservoir management, it is estimated that for the total trips, 2 percent will go to Scholl Canyon Landfill, 75 percent will go to the Irwindale sites, and 23 percent will go to the Sun Valley sites. Reservoir management activities will use only disposal trucks that meet EPA's emission standards for Model Year 2010 2007 or later and Tier 3 or higher equipment.

Reservoir management activities emissions, including dust emissions from soil disturbance and combustion pollutants from onsite construction equipment, from offsite trucks hauling sediment material, and from employees working on the Proposed Project will create a temporary addition of

**Section 3.5.6 AIR QUALITY – Impacts and Mitigation**

**Page 90**

**Table 3.5-1: Unmitigated Reservoir Management Activity**

Category	Maximum Daily Emissions (lbs/d)*				
	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Off-Road	2.86	17.29	19.26	0.98	0.98
On-Road Trucks	2.82	17.47	40.56	1.70	1.56
Onsite Idling	0.20	0.89	1.17	0.00	0.00
Employees	0.02	0.76	0.07	0.00	0.00
Fugitive	0.00	0.00	0.00	3.30	0.75
Project Maximum Daily	5.9	36.4	61.1	10.5	3.3
SCAQMD Daily Threshold	75.00	550.00	100.00	150.00	55.00
<b>Exceeds Threshold?</b>	No	No	No	No	No

\* Reservoir management activities will use only disposal trucks that meet EPA's emission standards for Model Year ~~2010~~ 2007 or later and Tier 3 or higher equipment.

As shown in the above table, reservoir management under either option will not exceed any standard and will result in less than significant impacts.

#### Mitigation Measures

See Mitigation Measures MM AQ-1 and MM AQ-2.

#### Residual Impacts After Mitigation

Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 would reduce the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal phase to a level of less than significant. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

Reservoir management under either option will not exceed any standard SCAQMD Regional Threshold; therefore, this impact will be less than significant.

**AIR QUALITY-3** *Result in a cumulatively considerable net increase of any criteria pollutants 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).*

#### Sediment Removal/Reservoir Management

In accordance with *CEQA Guidelines* 15130(b), this analysis of cumulative impacts incorporates a summary of projections. The following three-tiered approach is to assess cumulative air quality impacts.

- Consistency with the SCAQMD project-specific thresholds for construction and operation;
- Project consistency with existing air quality plans;

**Section 3.6.6 BIOLOGICAL RESOURCES – Impacts and Mitigation**

**Pages 130 – 134**

- Pushing a tree down with heavy machinery instead of felling the tree with a chainsaw
  - First pushing the tree lightly 2 to 3 times with a pause of 30 seconds between each nudge to allow bats to become active, then pushing the tree to the ground slowly
  - Allowing the tree to remain in place for 24 to 48 hours until inspected by the qualified biologist for presence or absence of roosting bats
- The qualified biologist shall document all bat survey, monitoring, and protection measure activities and prepare a summary report for LACFCD.

Residual Impacts after Mitigation

With implementation of these mitigation measures, the Proposed Project under sediment removal and both management options would result in a less than significant impact on candidate, sensitive, or special status species.

**BIOLOGY-2** *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

The vegetation communities within the Proposed Project area were mapped in 2013, are shown on Figure 3.6-2, and are described in Section 3.6.2 of the Final EIR. The potential impacts to the vegetation communities resulting from implementation of the sediment removal phase of the Proposed Project are listed below in Table 3.6-4. Sediment and native and nonnative vegetation will be removed from within the same Project boundary as during the sediment removal phase for both reservoir management Options 1 and 2 (Section 2.5.1). Therefore, the resulting impacts on the sensitive vegetation communities, which include riparian habitats (Riparian Woodland and Mule Fat Thickets), Riversidean Alluvial Fan Sage Scrub, and Coastal Sage Scrub will be the same for both Options 1 and 2. The impacts on these sensitive vegetation communities are described following the table.

**Table 3.6-4 – Proposed Project Impacts to Vegetation Communities During Sediment Removal Phase**

<b>Vegetation Community</b>	<b>Acreage of Impacts</b>
<b>RIPARIAN</b>	
Mule Fat Thickets	<u>11.1</u>
Riparian Woodland (Black Willow Series)	<u>51.4</u>
<b>UPLAND</b>	
California Sagebrush-California Buckwheat Scrub	<u>3.1</u>
Riversidean Alluvial Fan Sage Scrub	<u>1.1</u>
<b>OTHER</b>	
Mustard and Annual Brome Semi-Natural Herbaceous Stand*	<u>22.8</u>
Escaped Cultivars*	<u>0.4</u>
Disturbed (Barren/Trails)	<u>1.9</u>
Scoured	<u>26.5</u>
<b>TOTAL</b>	<b><u>118.3</u></b>
<b>*Denotes nonnative plant community</b>	

## Sediment Removal/Reservoir Management

### Riversidean Alluvial Fan Sage Scrub

~~The Proposed Project would impact approximately 1.1 acres of Riversidean Alluvial Fan Sage Scrub within the Proposed Project site. Riversidean Alluvial Fan Sage Scrub is considered a sensitive natural community and it is a to be of high priority for inventory by CDFW in the California Natural Diversity Data Base (CNDDDB) because of its significance and rarity. The scouring of the main channel and the deposition of sediment following the 2009 Station Fire and subsequent storms resulted in the removal and burial of much of the Riversidean Alluvial Fan Sage Scrub that was present in the upper portion of the reservoir prior to the sediment flows (Section 3.6.2, Figures 3.6-1 and 3.6-2). The remaining 1.1 acres of Riversidean Alluvial Fan Sage Scrub in the Proposed Project site that was not scoured or buried was limited to a small patch in the northwest portion of the Proposed Project site, a small patch in the channel near the east side of the Proposed Project site, and a linear patch located on the slope along the eastern edge of the upstream portion of the Proposed Project site (See Figure 3.6- 2).~~

~~During the sediment removal phase of the Proposed Project, approximately 1.1 acres of isolated patches of Riversidean Alluvial Fan Sage Scrub located in the upstream portion of the Proposed Project site would be removed along with the sediment that was deposited after the 2009 Station Fire (Figure 3.6-2). The plant species typically found in this vegetation community are adapted to living in dynamic wash systems (Smith 1980), such as the Arroyo Seco, where scouring of vegetation naturally occurs during storm events (Hanes et al. 1989). Consequently, these plant species would be expected to naturally re-establish in the Arroyo Seco wash after the sediment removal has been completed. The seeds from existing plants located upstream and outside of the Proposed Project boundary would be naturally deposited on the soils in the Proposed Project area by water during storm flows, by wind, and by animals (Smith 1980). The deposited seeds would be expected to germinate and grow into mature plants in areas where the soil and moisture conditions are favorable.~~

~~After the sediment removal phase of the Project is complete, mowing or removal of vegetation that becomes naturally reestablished in the reservoir management area would occur on an annual basis (Section 2.5.2). For Option 1, reservoir management would occur in the entire Proposed Project site; therefore, Riversidean Alluvial Fan Sage Scrub vegetation would be removed on an annual basis but it may regrow each year between maintenance activities. For Option 2, the impacts to the 1.1 acres of Riversidean Alluvial Fan Sage Scrub resulting from the sediment removal phase would be considered temporary because the area located between the reservoir management area boundary and the upstream boundary of the sediment removal area would not be disturbed at all during the reservoir management activities (Figure 2.5-5). Consequently, under Option 2, the LACFCD would be able to restore Riversidean Alluvial Fan Sage Scrub in the temporary impact area to supplement any plants that naturally established from seeds deposited on the soils by water, wind, and animals.~~

~~Impacts to Riversidean Alluvial Fan Sage Scrub, which is a sensitive natural community identified by CDFW in the CNDDB (CNDDB, CDFW 2017), would result in a significant impact requiring mitigation. To compensate for the To minimize impacts due to loss of 1.1 acres of isolated patches of Riversidean Alluvial Fan Sage Scrub resulting from the Proposed Project, the LACFCD would restore and/or enhance Riversidean Alluvial Fan Sage Scrub habitat either onsite or offsite to achieve not less than a 1:1 ratio of replacement for a no net loss of this vegetation community (MM BIO-6). Mitigation Measure MM-BIO-6 has been provided. Removing the sediment will also benefit the alluvial fan sage scrub since the habitat is currently buried under sediment and therefore considered poor quality. The priority for determining~~



mitigation site locations for unavoidable impacts would be onsite (for the Proposed Project and Alternatives), offsite within the Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed (CDFW Comment Letter #171). Aerial photographs, as well as on the ground vegetation surveys, would be utilized to assist with the identification of final impact acres prior to vegetation removal and existing Riversidean Alluvial Fan Sage Scrub vegetation that could be enhanced and areas where this vegetation community can be restored.

Ecological restoration is an intentional activity that initiates or accelerates the recovery of an ecosystem with respect to its health, integrity and sustainability and is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed (SER 2002). Habitat restoration generally refers to "the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning the majority of natural functions to the lost or degraded native habitat (Partners for Fish and Wildlife 2006a)." Habitat enhancement refers to the manipulation of the physical, chemical, or biological characteristics of a habitat to change a specific function or seral stage of the habitat (Partners for Fish and Wildlife 2006b). Enhancement includes removing nonnative and invasive plants species and installing supplemental seed or container plants to improve the condition of the habitat and to provide additional resources for wildlife species.

To guide the restoration and enhancement efforts, LACFCD, with assistance from professional restoration ecologists, would prepare a Habitat Restoration Plan that would identify the locations of the restoration and enhancement sites for Riversidean Alluvial Fan Sage Scrub as well as other riparian and sensitive vegetation communities impacted by the Proposed Project. The Habitat Restoration Plan would include the guidelines and specifications for installing container plants and seeds, irrigating the plantings, removing nonnative plants and weeds, conducting maintenance, conducting qualitative and quantitative monitoring, selecting reference sites, establishing performance standards, submitting progress reports, implementing long-term management and funding, which would lead to the success of the restoration and enhancement sites.

The success of the restoration and enhancement sites would be determined by using established methodologies (e.g., transects, quadrats, or other applicable methods) for conducting quantitative monitoring (Elzinga et al 1998) to calculate percent cover of native and nonnative plant species, and native plant species richness (number of plant species). LACFCD would select offsite reference sites, where Riversidean Alluvial Fan Sage Scrub is the established plant community, that would be used as the model for the restored and enhanced plant community. Quantitative monitoring would be conducted at the reference sites and the values measured at those sites would be used to establish performance standards that must be met to determine the success of the restoration and enhancement sites. Upon completion of the installation of the plant/seed materials or initiation of enhancement activities at the mitigation sites, LACFCD would prepare an as-built plan to verify the mitigation site acreages and monitoring at the reference sites, restoration sites, and enhancement sites would be conducted concurrently for five years or until the established performance standards are met. The LACFCD would ensure the allocation and encumbrance of the funds specifically to implement, maintain, and monitor the restoration activities at the mitigation sites until the performance standards are met, and therefore deemed successful. In addition, LACFCD would also ensure the allocation and encumbrance of the funds to cover the costs of the long-term management, maintenance, and protection of the mitigation sites.

If, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage mitigation sites, then

adaptive management measures would be implemented. Adaptive management measures will include but would not be limited to:

- Corrective re-grading of all or a portion of the mitigation site areas to correct hydrologic or other conditions negatively affecting the mitigation sites;
- Replanting in areas where plant survival is low or replanting to increase plant species cover or diversity;
- Installing different plant species for plant species which are not surviving;
- Adding soil amendments in areas where problem soils may be inhibiting plant growth; and,
- Closing trails or installing barriers if human impacts cause damage to the mitigation sites.

If the restoration or enhancement sites do not achieve the established performance standards after the implementation of adaptive management measures, then the required mitigation would be implemented at alternative sites and monitored until the established performance standards are achieved. The priority for determining alternative mitigation site locations would be onsite, offsite within the Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.

Quantitative and qualitative monitoring of the restoration and enhancement sites would be conducted during each year until the sites achieve the performance standards. Annual monitoring reports would be prepared that describe all activities conducted throughout each year of monitoring, including the results of the quantitative and qualitative monitoring. The annual monitoring reports would be kept on file at LACFCD with copies to CDFW and USACE to provide documentation of the status of the restoration and enhancement sites and to provide the documentation of when the restoration and enhancement sites meet the required mitigation obligations.

Restoration of Riversidean Alluvial Fan Sage Scrub has been successfully accomplished as mitigation for other projects in southern California. Vulcan Materials Company (Vulcan) has been revegetating this plant community at their Cajon Creek Habitat Conservation Management Area (Management Area) since 1992 (Cajon Creek Revegetation Analysis 2013). The revegetation was required as mitigation for impacts at Vulcan's San Bernardino mining facility and for impacts associated with the Cajon Creek Specific Plan. Vulcan prepared a Habitat Enhancement and Management Plan (HEMP) that included the numerous management activities Vulcan was required to implement to address trespass and nonnative weed infestations and to create, restore, and enhance habitat (Blane 1996). The purpose of Vulcan's revegetation efforts within the Management Area was to restore natural components of Riversidean Alluvial Fan Sage Scrub to the extent practical to provide suitable plant and wildlife habitat (Cajon Creek Revegetation Analysis 2013). Between 1992 and 2008, Vulcan successfully revegetated over 100 acres of Riversidean Alluvial Fan Sage Scrub and all of the revegetation sites met the established performance standards in four years or less after the initial seeding of the sites (Cajon Creek Revegetation Analysis 2013). The exception was one site that was planted in 2001 but the quantitative monitoring wasn't conducted until 2008 so it is unknown when the site actually met the performance standards (Cajon Creek Revegetation Analysis 2013). Vulcan's success at revegetating Riversidean Alluvial Fan Sage Scrub on mitigation sites at the Management Area provides proof that this plant community can be successfully restored.

A Mitigated Negative Declaration (MND) prepared for the Quail Run Apartment project in the City of Riverside required a 1:1 mitigation ratio for impacts to Riversidean Alluvial Fan Sage Scrub and to riparian habitats, including willow-mule fat woodland, mule fat scrub, and riverine areas (City of Riverside 2016a). The mitigation included replacing/restoring these habitats with the same habitats at a

1:1 ratio. The Quail Run Apartment project's grading plan was revised to accommodate full on-site mitigation for the impacts to the riparian habitat and other sensitive plant communities (Riversidean Alluvial Fan Sage Scrub) (City of Riverside 2016a). Full on-site mitigation for the project was determined in consultation with the Western Riverside County Regional Conservation Agency (RCA), USFWS, CDFW, and the Santa Ana Regional Water Quality Control Board (Santa Ana Regional Board), and a site visit with the staff from the USFWS, CDFW, and Santa Ana Regional Board (City of Riverside 2016a). Mitigation measures for the Quail Run Apartment project included conducting breeding bird surveys, setting up buffers around active nests, and preparation of a restoration plan by the Applicant for submittal to the City of Riverside. The City of Riverside would be responsible for submitting the restoration plan to the RCA, CDFW, and USFWS and would also be responsible for ensuring that the restoration actions were carried out and successful. The mitigation measures also included placing the mitigation areas under a conservation easement dedicated to the RCA or other approved mitigation entity. The conclusions related to biological resources stated that, with implementation of the mitigation measures requiring the preparation, approval, and implementation of a detailed habitat restoration plan and recordation of a conservation easement, there would be no net loss of riparian/riverine habitats (City of Riverside 2016a). The conclusions also stated that, although implementation of the Quail Run Apartment project may result in the loss of federal and state jurisdictional waters, the impacts would be reduced to less than significant because the project would implement a mitigation measure requiring the applicant to obtain permits from the USACE, CDFW, and RWQCB prior to the issuance of a grading permit and requiring the applicant to adhere to the conditions placed on the permits. In the Mitigation Monitoring and Reporting Program (MMRP) for the Quail Run Apartment project (City of Riverside 2017a), the mitigation measure addressing authorizations from the regulatory agencies also states that "Project-specific impacts to jurisdictional waters shall be mitigated by USACE, CDFW, and the RWQCB where applicable." Two other mitigation measures stipulated no trespass of construction limits should occur into jurisdictional waters and that no drainage for subsequent development would be designed to flow or be directed into the mitigation areas. The Quail Run Apartment Project was approved by the City of Riverside on May 19, 2016 (City of Riverside 2016b).

Based on the success that Vulcan has had at revegetating Riversidean Alluvial Fan Sage Scrub at their Cañon Creek Management Area and the precedent set by the City of Riverside for requiring a 1:1 mitigation ratio to compensate for impacts to this sensitive vegetation community, the 1:1 mitigation ratio required by MM BIO-6 for the Proposed Project would result in the successful replacement of the same acreage of Riversidean Alluvial Fan Sage Scrub that would be affected by the Proposed Project. Implementation of the specifications and management activities included in the Habitat Restoration Plan prepared by LACFCD for the Proposed Project and monitoring of the Riversidean Alluvial Fan Sage Scrub restoration and enhancement sites by LACFCD until they are successful would ensure the mitigation would fully offset the impacts of the Proposed Project.

The LACFCD will implement the measures necessary to achieve successful restoration and enhancement of Riversidean Alluvial Fan Sage Scrub. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of this sensitive habitat. The LACFCD will implement the Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement Riversidean Alluvial Fan Sage Scrub mitigation at alternative sites and monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, Riversidean Alluvial Fan Sage Scrub can be successfully restored and enhanced. Successful restoration and enhancement of Riversidean

Alluvial Fan Sage Scrub would achieve not less than a 1:1 replacement and result in a no net loss of this sensitive vegetation community. Therefore, With implementation of this mitigation measure, Mitigation Measure MM BIO-6 would reduce impacts to Riversidean Alluvial Fan Sage Scrub-would be reduced to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-6 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

*Coastal Sage Scrub (California Sagebrush – California Buckwheat Scrub)*

In 2010, large patches of California Sagebrush – California Buckwheat Scrub surrounded the riparian habitat in the northern portion of the Proposed Project site (Section 3.6.2). These patches were largely replaced with scoured areas (Section 3.6.2) by the storm flows following the 2009 Station Fire. Most of the scouring of this vegetation community occurred along the northwestern bank of the Proposed Project site (Figures 3.6-1 and 3.6-2). Only much smaller patches of California Sagebrush – California Buckwheat Scrub remained in 2013 (Section 3.6.2).

During the sediment removal phase of the Proposed Project, approximately 3.1 acres of isolated patches of California Sagebrush – California Buckwheat Scrub located in patches in the upstream portion of the Proposed Project site would be removed along with the sediment that was deposited after the 2009 Station Fire (Figure 3.6-2). After the sediment removal phase of the Project is complete, mowing or removal of vegetation that becomes naturally reestablished in the reservoir management area would occur on an annual basis (Section 2.5.2). For Option 1, reservoir management would occur in the entire Proposed Project site; therefore, plants associated with the Coastal Sage Scrub plant community that might become established along the banks of the management area would be removed on an annual basis but it may regrow each year between maintenance activities. For Option 2, most of the impacts to the 3.1 acres of Coastal Sage Scrub resulting from the sediment removal phase would be considered temporary because the area located between the reservoir management area boundary and the upstream boundary of the sediment removal area would not be disturbed at all during the reservoir management activities (Figure 2.5-5). Consequently, under Option 2, the LACFCD would be able to restore the Coastal Sage Scrub plant community along the banks of the channel in the temporary impact area.

Coastal Sage Scrub within the range of the coastal California gnatcatcher is of concern to the USFWS because of its potential to support this federal-listed threatened species. Habitat loss and fragmentation of Coastal Sage Scrub throughout the range of this species was used as a determining factor for listing the species in 1993 (USDOJ 1993). Impacts to Coastal Sage Scrub would potentially result in a significant impact requiring mitigation, particularly if the habitat is occupied by the coastal California gnatcatcher. During focused protocol-level surveys conducted for this species in 2016, coastal California gnatcatchers were not observed in the Coastal Sage Scrub habitat areas located in or adjacent to the Proposed Project site. To compensate for the loss of Coastal Sage Scrub resulting from the Proposed Project, the LACFCD would restore and/or enhance Coastal Sage Scrub habitat either onsite or offsite to achieve not less than a 1:1 ratio of replacement for a no net loss of this vegetation community (MM BIO-8). The priority for determining locations for unavoidable impacts would be onsite (for the Proposed Project and Alternatives), offsite within the Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed (CDFW Comment Letter #171). LACFCD would conduct biological surveys to determine final impact acres prior to vegetation removal and identify the suitability of potential Coastal Sage Scrub mitigation sites.

As described above for Riversidean Alluvial Fan Sage Scrub, the LACFCD would prepare a Habitat Restoration Plan to guide the restoration and enhancement effort at the identified Coastal Sage Scrub mitigation sites. The Habitat Restoration Plan would include guidelines and specifications for installing container plants and seeds, irrigating the plantings, removing nonnative plants and weeds, conducting maintenance, conducting qualitative and quantitative monitoring, selecting reference sites, establishing performance standards, submitting progress reports, implementing long-term management and funding, which would lead to the success of the restoration and enhancement sites. The success of the mitigation sites would be determined by using established methodologies (e.g., transects, quadrats, or other applicable methods) for conducting quantitative monitoring (Elzinga et al 1998, CWMW 2013) to calculate survivorship of the plantings, percent cover of native and nonnative plant species, and native plant species richness. LACFCD would select offsite reference sites, where Coastal Sage Scrub is the established plant community, that would be used as the model for the restored and enhanced plant community. Subsequent to implementation, as described for Riversidean Alluvial Fan Sage Scrub, an as-built plan would be prepared to verify mitigation site acreages and quantitative monitoring at the reference, restoration, and enhancement sites, would be conducted for five years or until the established performance standards are met. The LACFCD would ensure the allocation and encumbrance of the funds specifically to implement, maintain, and monitor the restoration activities at the mitigation sites until the performance standards are met, and therefore deemed successful. In addition, LACFCD would also ensure the allocation and encumbrance of the funds to implement the long-term management, maintenance, and protection of the mitigation sites.

As described above for Riversidean Alluvial Fan Sage Scrub, if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage mitigation sites, then adaptive management measures would be implemented.

If the restoration or enhancement sites do not achieve the established performance standards after the implementation of adaptive management measures, then the required mitigation would be implemented at alternative sites and monitored until the established performance standards are achieved. The priority for determining alternative mitigation site locations would be onsite, offsite within the Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.

Quantitative and qualitative monitoring of the restoration and enhancement sites would be conducted during each year until the sites achieve the performance standards. Annual monitoring reports would be prepared that describe all activities conducted throughout each year of monitoring, including the results of the quantitative and qualitative monitoring. The annual monitoring reports would be kept on file at LACFCD with copies to CDFW, USACE, and RWQCB to provide documentation of the status of the restoration and enhancement sites and to provide the documentation of when the restoration and enhancement sites meet the required mitigation obligations.

Restoration of Coastal Sage Scrub vegetation has been conducted successfully in southern California, as evidenced by the restoration conducted for the Tonner Hills Planned Community project in the City of Brea in Orange County. In February 2004, a Final Coastal Sage Scrub Mitigation and Monitoring Plan (Chambers 2004) was prepared to address impacts of the project on Coastal Sage Scrub vegetation that was occupied or potentially occupied by the coastal California gnatcatcher, a federal threatened species. The plan described the methods to be used to restore and enhance Coastal Sage Scrub within the project's 473.2-acre habitat conservation area. The project included the phased restoration of 116.6 acres of Coastal Sage Scrub prior to and during the implementation of the development project.

Implementation of the habitat restoration in Revegetation Areas A (14 acres) and B (20 acres), was conducted in 2003/2004. The final performance criteria for the 14-acres and 20-acres revegetation areas that were stated in the CSS Habitat Mitigation Plan required 75% cover of native shrubs, a minimum of 80% of the plant species represented (after 3 years), evidence of natural reproduction, less than 5% cover of non-native species (after 5 years), and evidence of use by wildlife species. Additional performance criteria for Areas A and B were required by the USFWS to offset impacts to coastal California gnatcatcher and suitable Coastal Sage Scrub habitat for this species. Prior to the initiation of construction in two planning areas, breeding gnatcatchers had to be documented within revegetation Area A and the Coastal Sage Scrub habitat in Area B had to represent occupiable conditions for the gnatcatcher. Regular maintenance, monitoring (qualitative and quantitative), and reporting was conducted to determine when the two revegetation areas met the established performance criteria. On July 15, 2005, the USFWS signed a letter of approval for the 14-acre and 20-acre Coastal Sage Scrub restoration sites (USFWS 2005). The USFWS agreed that the two restoration sites (A and B) had met the performance standards identified in the Coastal Sage Scrub Mitigation and Monitoring Plan and that both areas were occupied by breeding gnatcatchers.

An EIR and MMRP prepared for the Rambla Pacifico Street Reconstruction project in the City of Malibu required a 1:1 mitigation ratio for impacts to Coastal Sage Scrub habitat (City of Malibu 2010a). The project is located within the coastal zone and is subject to the regulations of the City of Malibu Local Coastal Program (LCP). The area of impact to Coastal Sage Scrub habitat associated with project grading encroached into designated environmentally sensitive habitat area (ESHA). Mitigation for disturbance of ESHA was required to comply with the LCP Local Implementation Plan (LIP) Section 4.8.1, which requires mitigation of habitat impacts through the restoration of an area of degraded habitat equivalent to the affected habitat (City of Malibu 2002). Mitigation included restoration of 1.9 acres of Coastal Sage Scrub habitat impacted during grading activities (City of Malibu 2016a). In addition to the restoration, the mitigation measures for the Rambla Pacifico Street Reconstruction project included installation of Best Management Practices (BMPs) to protect adjacent sensitive areas, conducting breeding bird surveys, setting up buffers around active nests, monitoring vegetation removal, and preparation of a restoration plan by the Applicant for submittal to the City of Malibu. The mitigation measures also indicated that habitat restoration would be carried out prior to or concurrently with construction activities, and that the habitat restoration areas will be permanently maintained as open space through a recordation of an open space deed restriction (City of Malibu 2010a). The City of Malibu was responsible for ensuring that the restoration actions were carried out and successful. The City of Malibu Planning Commission certified the EIR for the Rambla Pacifico Street Reconstruction Project on June 1, 2010 (City of Malibu 2010b).

Based on the success that the Tonner Hills Planned Community project had at restoring Coastal Sage Scrub in their habitat conservation area and the precedent set by the City of Malibu for requiring a 1:1 mitigation ratio to compensate for impacts to sensitive vegetation communities, the 1:1 mitigation ratio required by MM BIO-8 for the Proposed Project would result in the successful replacement of the same acreage of Coastal Sage Scrub that would be affected by the Proposed Project. Implementation of the specifications and management activities included in the Habitat Restoration Plan prepared by LACFCD for the Proposed Project and monitoring of the Coastal Sage Scrub restoration and enhancement sites by LACFCD until they are successful would ensure the mitigation would fully offset the impacts of the Proposed Project.

The LACFCD will implement the measures necessary to achieve successful restoration and enhancement of Coastal Sage Scrub. The LACFCD, with the help of professional restoration ecologists, will develop a

Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of this sensitive habitat. The LACFCD will implement the Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement Coastal Sage Scrub mitigation at alternative sites and monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, Coastal Sage Scrub can be successfully restored and enhanced. Successful restoration and enhancement of Coastal Sage Scrub would achieve not less than a 1:1 ratio of replacement and no net loss of this sensitive vegetation community. Therefore, implementation of Mitigation Measure MM BIO-8 would reduce impacts to Coastal Sage Scrub to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

### Riparian Habitats

Implementation of the sediment removal phase of the Proposed Project would result in the removal of riparian habitats, including approximately 51.4 acres of Riparian Woodland and 11.1 acres of Mule Fat Thickets within the Proposed Project site. The areas where the Riparian Woodland and Mule Fat Thickets occur within the Proposed Project site have been heavily affected by the influx of sediment that happened after the 2009 Station Fire and subsequent storms (Chambers 2010a). Portions of the Riparian Woodland and much of the Mule Fat Scrub were completely buried by sediment and in some places, the sediment was up to approximately 18 feet deep (Section 3.6.2). Also, the secondary structure of the Riparian Woodland in many areas was lost due to the accumulation of sediment that buried the native understory shrubs and herbaceous plant species under the riparian trees (Section 3.6.2). This loss of secondary structure of native plant species in Riparian Woodland eliminates potential nesting, roosting, and cover sites for common and sensitive species of birds and other wildlife that primarily use the vegetation in the shrub and herbaceous plant layers (RHJV 2004).

The large distribution of Mule Fat Thickets located in the upstream portion of the reservoir prior to the influx of sediment (see Figure 3.6-1 and Figure 3.6.2) was almost completely removed by the scouring flows after the 2009 Station Fire (Section 3.6.2). After the influx of sediment into the reservoir, remnant Mule Fat Thickets were mapped in scattered patches along the western portion of the reservoir and just south of the first percolation basin on the east side of the reservoir (Figure 3.6-2). In addition, patches of Mule Fat Thickets were also located near the face of the dam but these were noted as being an early seral stage of this plant community (Section 3.6.2). This early seral stage includes seedlings and saplings rather than mature plants, which indicates the mule fat vegetation grew in after the deposition of sediment near the dam. Mule fat seeds germinate rapidly in areas where flooding, fire, or other disturbances occur so this plant community would be expected to naturally fill in where soil conditions meet the specific needs of the plant species and where there would not be too much competition with nonnative plant species (Allen and Roberts 2013) for resources.

The influx of sediment into the reservoir following the Station Fire provided an opportunity for weeds and nonnative and invasive species of plants to become established in the disturbed areas, including on top of the accumulated sediments in the remaining native riparian habitats. The acreage of nonnative, weedy vegetation in the Proposed Project area increased from 7.64 acres in 2010 to approximately 22.8 acres in 2013 due to frequent disturbance from sedimentation and erosion during storm events (Section 3.6.2). Nonnative and invasive plant species have become established throughout much of the

Proposed Project site, including in those areas where Riparian Woodland and Mule Fat Thickets were previously located. Figures 3.6-1 and 3.6-2 show the difference in the distributions of nonnative plants, Riparian Woodland, and Mule Fat Thickets in 2010 and 2013, respectively. Large patches of nonnative plants, classified as Mustard and Annual Brome Semi-Natural Herbaceous Stand, occupy 22.8 acres within the Proposed Project site and are interspersed between patches of riparian habitats, which has resulted in fragmentation of the riparian habitats (Figure 3.6-2). The nonnative and invasive plant species present in the Proposed Project area include Italian thistle (*Carduus pycnocephalus*), poison hemlock (*Conium maculatum*), short-pod mustard (*Hirschfeldia incana*), curly dock (*Rumex crispus*), wild radish (*Raphanus sativus*), red-stemmed filaree (*Erodium cicutarium*), bristly ox-tongue (*Helminthotheca echioides*), tree tobacco (*Nicotiana glauca*), perennial pepper weed (*Lepidium latifolium*), and nonnative grasses (*Bromus spp.*) (Section 3.6.2). Weeds and nonnative and invasive plant species germinate quickly in disturbed areas and will invade native plant communities where they can outcompete native plant species for resources (Hayes and Holzmueller 2012). Fragmentation of native plant communities by nonnative and invasive plants or replacement of native plants by nonnative and invasive plant species causes degradation of the native plant communities (NRCS 2010). The portions of the riparian habitats in the Proposed Project site that were fragmented by, or replaced with nonnative and invasive plant species after the 2009 Station Fire and subsequent storms are considered degraded from the habitat conditions present prior to the fire and subsequent storms.

After the sediment removal phase of the Project is complete, mowing or removal of vegetation that becomes naturally reestablished in the reservoir management area would occur on an annual basis. Under Option 1, reservoir management would occur in the entire Proposed Project site; therefore, plant species characteristic of the Riparian Woodland and Mule Fat Thicket vegetation communities would be removed on an annual basis but may regrow each year between maintenance activities (Figure 2.5-1). Under Option 2, the impacts to a portion of the riparian habitats located upstream of the boundary of the reservoir management area would be considered temporary because the area located between the reservoir management area boundary and the upstream boundary of the sediment removal area would not be disturbed at all during the reservoir management activities (Figure 3.6-5). Consequently, under Option 2, the LACFCD would replant this 29-acre temporary impact area with Riparian Woodland and Mule Fat Thicket vegetation communities where appropriate in addition to planting Riversidean Alluvial Fan Sage Scrub, as described previously.

The riparian habitats in the Proposed Project site have been fragmented and degraded due to the presence of large patches of nonnative and invasive plants. Without intervention, which would include the removal and ongoing management of the nonnative and invasive plants, the nonnative and invasive plants will continue to spread and further degrade the riparian habitats in Devil's Gate Reservoir. Removal of riparian habitats, including both Riparian Woodland and Mule Fat Thickets, are rare plant communities and provide nesting habitat for riparian species; impacts to these habitats would result in a significant impact, requiring mitigation. However, the removal of the nonnative and invasive plants in the reservoir would result in a beneficial impact of the project. To compensate for To minimize impacts due to the loss of the Riparian Woodland and Mule Fat Thickets, Mitigation Measures MM-BIO-7 and MM-BIO-8 have been provided. resulting from the Proposed Project, the LACFCD would restore and enhance areas to create undisturbed, unfragmented, and structurally diverse Riparian Woodland and Mule Fat Thickets onsite and/or offsite and would remove exotic plant species from onsite and offsite areas supporting these riparian habitats to achieve not less than a 1:1 ratio of replacement for no net loss of these vegetation communities (MM-BIO-7 and MM-BIO-8).



The design of the created, restored, or enhanced riparian habitats that LACFCD would implement as mitigation for the loss of degraded riparian habitats would include installing native plant species and creating the appropriate vegetation structure to support the nesting activities of least Bell's vireos and other riparian species. Restoration under MM BIO-7 and BIO-8 would include but not be limited to:

- creating new riparian habitat in areas where it does not currently exist;
- removing nonnative plants from riparian habitats and replanting with native plant species;
- creating structurally diverse riparian habitat by planting additional shrub and tree species in areas where structural diversity is lacking;
- repairing damaged or disturbed areas by planting them with native plant species; and,
- restoring continuity between fragmented patches of riparian habitat by planting native plant species to fill in the gaps.

The priority for determining mitigation site locations for unavoidable impacts would be onsite (for the Proposed Project and Alternatives), offsite within the Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed (CDFW Comment Letter #171). LACFCD would conduct biological surveys to determine final impact acres prior to vegetation removal and identify the suitability of potential mitigation sites for riparian creation, restoration, and/or enhancement opportunities and for wildlife movement preservation where the sites can be protected and managed.

As described above for Riversidean Alluvial Fan Sage Scrub, LACFCD would prepare a Habitat Restoration Plan to guide the restoration and enhancement effort at the identified riparian mitigation sites. The Habitat Restoration Plan would include guidelines and specifications for installing container plants, willow and mule fat cuttings, and seeds, irrigating the plantings, removing nonnative plants and weeds, conducting maintenance, conducting qualitative and quantitative monitoring, selecting reference sites, establishing performance standards, submitting progress reports, implementing long-term management and funding, which would lead to the success of the restoration and enhancement sites. The success of the restoration and enhancement sites would be determined by using established methodologies (e.g., transects, quadrats, California Rapid Assessment Method, USFWS established survey protocols, or other applicable methods) for conducting quantitative monitoring (Elzinga et al 1998, CWMW 2013) to calculate survivorship of the plantings, percent cover of native and nonnative plant species, native plant species richness, structural patch richness, and wildlife use. LACFCD would select offsite reference sites, where Willow Woodland and Mule Fat Thickets are the established plant communities, that would be used as the models for the restored and enhanced plant communities. Quantitative monitoring would be conducted at the reference sites and the values measured at those sites would be used to establish performance standards that must be met to determine the success of the restoration and enhancement sites. Subsequent to implementation, as described for Riversidean Alluvial Fan Sage Scrub, an as-built plan would be prepared to verify mitigation site acreages and quantitative monitoring at the reference, restoration, and enhancement sites, would be conducted for five years or until the established performance standards are met. The LACFCD would ensure the allocation and encumbrance of the funds specifically to implement, maintain, and monitor the restoration activities at the mitigation sites until the performance standards are met and therefore deemed successful. In addition, LACFCD would also ensure the allocation and encumbrance of the funds to implement the long-term management, maintenance, and protection of the mitigation sites.

If, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage mitigation sites, adaptive management measures would be implemented. As described above for Riversidean Alluvial Fan Sage

Scrub, adaptive management measures would include but not limited to regrading restoration sites, replanting areas or installing different plant species, adding soil amendments, or alleviating human impacts by closing trails or installing barriers.

If the restoration or enhancement sites do not achieve the established performance standards after the implementation of adaptive management measures, then the required mitigation would be implemented at alternative sites and monitored until the established performance standards are achieved. The priority for determining alternative mitigation site locations would be onsite, offsite within the Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.

Quantitative and qualitative monitoring of the restoration and enhancement sites would be conducted during each year until the sites achieve the performance standards. Annual monitoring reports would be prepared that describe all activities conducted throughout each year of monitoring, including the results of the quantitative and qualitative monitoring. The annual monitoring reports would be kept on file at LACFCD with copies to CDFW, USACE, and RWQCB to provide documentation of the status of the restoration and enhancement sites and to provide the documentation of when the restoration and enhancement sites meet the required mitigation obligations.

A comparative study conducted by researchers at the University of California, Los Angeles (UCLA) and the University of California, San Francisco (UCSF) for the California State Water Resources Control Board (SWRCB) evaluated compliance and wetland condition of compensatory wetland mitigation projects associated with Clean Water Act Section 401 Water Quality Certifications throughout California (Ambrose et al 2007). The authors also evaluated mitigation requirements from other regulatory agencies, such as USACE Section 404 permits, CDFW Section 1600 permits, and mitigation plans. One-hundred forty-three (143) Section 401 permits were randomly selected by the authors and evaluated throughout all 12 SWRCB Regions in the state of California. Approximately 65 percent of the evaluated permits included creation or restoration, 24% included enhancement, and 11% included preservation. Forty-seven or approximately 33 percent of the evaluated permits were from the four southern California regions (Regions 4, 7, 8, and 9) and 13 percent were from Region 4, which includes portions of Los Angeles and Ventura Counties. Region 4 was reported to be unique in that mitigation was required by the regulatory agencies for impacts to non-"waters," including coastal sage scrub and alluvial fan scrub uplands.

Approximately 16 percent of the 143 permits evaluated required mitigation ratios of 1:1 or less and approximately 70 percent of those projects were successful in achieving or exceeding the mitigation acreage required in the permits. A table summarizing the permits from the comparative study that required a 1:1 mitigation ratio or less is included in Appendix L. Approximately 65 percent of the permits requiring a 1:1 or less mitigation ratio were in the four southern California regions with 26 percent of those in Region 4. The results of the comparative study showed that approximately 67 percent of the projects in Region 4 that required a 1:1 mitigation ratio were successful in achieving or exceeding the mitigation acreage required in the permits.

A project included in the comparative study that was conducted in San Diego Creek in Orange County by the Irvine Ranch Water District impacted a total of 14.60 acres of jurisdictional habitat, including 1.0 acre of woody riparian wetland habitat, 11.60 acres of herbaceous wetland habitat, and 2.0 acres of ruderal wetland habitat plus 61.50 acres of non-jurisdictional pond habitat (Ambrose et al 2007) (Appendix L). A mitigation ratio of 1:1 was required by the 401 and 404 permits for the project and consisted of the creation of 14.60 acres of jurisdictional habitat, including 11.10 acres of wetlands, 2.50

acres of non-streambed open water, and 1.00 acre of riparian habitat. The project was successful in creating the required acreage of mitigation and the authors of the comparative study noted that the vegetation consisted primarily of black willows, cottonwoods, sycamores, mule fat, sagebrush, bulrush, mugwort, and phacelia with very few nonnative plant species present in the mitigation sites (Appendix L). The authors also noted that many animals were also present at the site, including small and large mammals, lizards, fish, ducks, and passerine birds (Ambrose et al 2007).

Another project listed in the comparative study that was conducted by the Ventura County Department of Airports involved the removal of sediment and debris from the Camarillo Hills Drain to restore design flow capacity (Appendix L). The required mitigation ratio in both the 401 and 404 permits was 1:1 for impacts to 9.3 acres of Waters of the U.S. The required mitigation was enhancement only of 9.3 acres of Waters of the U.S., which included removal of exotic plants within the low flow channel.

The Piru Creek Bridge project in Los Angeles County involved Caltrans' rehabilitation of the south abutment of the old Route 99 Bridge (53-82) over Piru Creek in the Angeles National Forest (Ambrose et al 2017). Caltrans removed existing broken concrete and ungrouted rock slope protection and placed fill to construct a new embankment. To construct the new embankment, Caltrans had to divert Piru Creek, which resulted in a total of 1.50 acres of impacts to jurisdictional habitat, including 0.40 acres of wetland habitat. The mitigation ratio required in the 404 permit was 1:1 and the mitigation consisted of the replacement and enhancement of the native vegetation disturbed by the construction activities with cottonwood, willow, and mule fat cuttings. The authors of the comparative study indicated that the vegetation at the mitigation site was primarily arroyo willow, red willow, cottonwoods, toyon, and mule fat, and they noted that it blended well with the natural vegetation. The project successfully restored and enhanced the required acreage of mitigation (Appendix L).

California state and federal policies have established goals of no net loss of wetland area or function (USEPA 2002, State of California 1993). The authors' results showed that "no net loss" of acreage was achieved (1) overall, (2) for jurisdictional "waters of the U.S." acreage, and (3) for wetlands themselves when comparing permanent impacts (true losses) to the mitigation acreage gained through habitat creation and restoration (true gains) (Ambrose et al 2007).

The success of projects that were required to create, restore, and/or enhance riparian habitats at a 1:1 mitigation ratio to compensate for impacts to riparian habitats and jurisdictional habitats has been documented in the comparative study conducted by researchers at UCLA and UCSF (Ambrose et al 2007). The success of permitted projects and the precedent set by the City of Riverside (described above under the heading for Riversidean Alluvial Fan Sage Scrub) and regulatory agencies for requiring a 1:1 mitigation ratio to compensate for impacts to riparian habitat, provides support that the 1:1 mitigation ratio required by MM BIO-7 and MM BIO-8 for the Proposed Project would result in the successful replacement of the same acreage of riparian habitats that would be affected by the Proposed Project. Implementation of the specifications and management activities included in the Habitat Restoration Plan prepared by LACFCD for the Proposed Project and monitoring of the riparian habitat restoration and enhancement sites until they are successful by LACFCD would ensure the mitigation would fully offset the impacts of the Proposed Project.

The LACFCD will implement the measures necessary to achieve successful restoration and enhancement of Riparian Woodland and Mule Fat Thickets. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of these sensitive habitats. The LACFCD will implement the Habitat

Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement Riparian Woodland and Mule Fat Thicket mitigation at alternative sites and monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, Riparian Woodland and Mule Fat Thickets can be successfully restored and enhanced. Successful restoration and enhancement Riparian Woodland and Mule Fat Thickets would achieve not less than a 1:1 replacement, or no net loss, of these sensitive natural communities. Therefore, implementation of Mitigation Measures MM BIO-7 and MM BIO-8 would reduce impacts to riparian habitats to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measures MM BIO-7 and BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

#### California Department of Fish and Wildlife

At Devil's Gate Reservoir, the OHWM of the reservoir exists up to the 1020 contour line. Wetland, as defined by USACE, exist within the OHWM area of Devil's Gate Reservoir. All three agencies have jurisdiction over this wetland within the Proposed Project site where there will be permanent impacts. USACE, CDFW and RWQCB have jurisdiction of the riparian habitat within the proposed project boundary, up to the HWM. Jurisdictional acreages were calculated within the Proposed Project site.

Table 3.6-5 lists the acreages of areas delineated as jurisdictional by the USACE, RWQCB, and CDFW. Approximately 101.13 acres of areas that fall within the boundary of CDFW jurisdictional areas, including riparian habitats and sensitive natural communities, would be impacted during the sediment removal phase of the Proposed Project.

The CDFW Jurisdictional Areas Map on Figure 3.6-4: CDFW Jurisdictional Areas Map shows the areas considered to be jurisdictional by CDFW that would be impacted during the sediment removal and reservoir management phases of the Proposed Project, Option 1, and during the sediment removal phase only for the Proposed Project, Option 2 (Figure 3.6-5). Implementation of the sediment removal phase of the Proposed Project would result in the removal of sediment and the riparian habitats and nonnative plant communities within the boundaries of CDFW jurisdiction. The riparian vegetation and channel within the banks of Devil's Gate Reservoir and the associated wildlife species would fall under the jurisdiction of the CDFW through Fish and Game Code Section 1602. Impacts to wildlife are described below under **BIOLOGY-4**. The impacts of the Proposed Project on Riversidean Alluvial Fan Sage Scrub and riparian habitats that fall under the jurisdiction of CDFW would be the same as the impacts previously described above under the headings of "Riversidean Alluvial Fan Sage Scrub" and "Riparian Habitats." jurisdictional acreages for the USACE, RWQCB, and the CDFW for waters and for vegetation impacts. Impacts to jurisdictional waters found within these

water features would result in a significant impact requiring mitigation. To minimize impacts due to loss of jurisdictional waters, Mitigation Measure MM BIO-8 has been provided.

**Table 3.6-15: Jurisdictional Acreage Matrix**

Authority	Jurisdictional Area (acre or sq. ft.)	Total Jurisdiction (acres)
USACE	Riparian Area outside Wetland Area*	54.33*
	Wetland Area	11.2
	Drainage Impacts	35.6
	Main channel	6.7
Braided channel	28.9	
<b>Total USACE Jurisdiction</b>		
		<b>101.13*</b>
RWQCB	Riparian Area Outside Wetland Area*	2,366,614.8 (sq. ft.)*
	Mule Fat Thickets*	406,414.8 (sq. ft.)*
	Riparian Woodland*	1,960,200 (sq. ft.)*
	Wetland Area	487,872 (sq. ft.) (11.2 ac)
	Drainage Impacts	1,550,736 (sq. ft.) (35.6 ac)
Main channel	291,852 (sq. ft.) (6.7 ac)	
Braided channel	1,258,884 (sq. ft.) (28.9 ac)	
<b>Total RWQCB Jurisdiction</b>		
		<b>4,405,222.8 (sq. ft.)* 2,038,608 (sq. ft.) (46.80 ac)</b>
CDFW	Riparian Area Outside Wetland Area	54.43
	Mule Fat Thickets	9.33
	Riparian Woodland	45.0
	Wetland Area	11.2
	Drainage Impacts	35.6
Main channel	6.7	
Braided channel	28.9	
<b>Total CDFW Jurisdiction</b>		
		<b>101.13</b>

\*Riparian areas located outside of the OHWM are not considered jurisdictional by USACE or RWQCB (USACE 1987, USACE 2008, California Water Code 1996). The total impacts to USACE and RWQCB jurisdiction has been corrected.

As stated previously, the influx of sediment after the 2009 Station Fire and subsequent storms heavily affected the riparian habitats within CDFW jurisdictional areas. The disturbance caused by the influx of sediment not only buried riparian vegetation but it also allowed nonnative and invasive plant species to spread to areas within the reservoir where they weren't located prior to the sediment deposition. The changes in the vegetation between 2010 (Figure 3.6-1) and 2013 (Figure 3.6-2) illustrate the increase in the distribution of nonnatives and invasive plants and the resulting decrease in the acreage and fragmentation of the riparian habitats and Riversidean Alluvial Fan Sage Scrub.

The Proposed Project would result in the removal of riparian habitats and Riversidean Alluvial Fan Sage Scrub and alteration of the channel within CDFW jurisdiction, which would be considered a significant impact. To compensate for the loss of the riparian habitats and Riversidean Alluvial Fan Sage Scrub within the CDFW jurisdictional areas, resulting from the Proposed Project, the LACFCD would restore and enhance areas and remove exotic plant species from onsite and offsite areas supporting riparian habitats to achieve not less than a 1:1 ratio of replacement for a no net loss of the riparian habitats within CDFW jurisdiction (MM BIO-8). Restoration options will include creation of new riparian habitats or Riversidean Alluvial Fan Sage Scrub in areas where they do not currently exist, restoring disturbed riparian habitats or Riversidean Alluvial Fan Sage Scrub that may be damaged or have a high level of

nonnative or invasive species to undisturbed habitat, or restoring continuity of riparian habitats that may be fragmented by nonnative plant species or disturbed areas. The priority for determining mitigation site locations for unavoidable impacts would be onsite (for the Proposed Project and Alternatives), offsite within the Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed (CDFW Comment Letter #171).

Prior to implementation of the Proposed Project, the LACFCD would obtain the necessary authorization from the CDFW for impacts to jurisdictional areas. As required by Section 1602, LACFCD would notify CDFW about the potential impacts of the Proposed Project on CDFW jurisdictional areas and wildlife prior to project implementation through the submittal of an application for a Lake or Streambed Alteration Agreement. The LACFCD would coordinate with CDFW regarding the locations of onsite and/or offsite mitigation sites. CDFW would determine the mitigation ratio required by the Section 1602 permit process, which may or may not be the same as the mitigation ratio determined to be adequate under CEQA. As required by the issuance of a CDFW Lake and Streambed Alteration Agreement, LACFCD would prepare a Habitat Restoration Plan that describes the following:

- types of habitats to be created, restored, or enhanced;
- methods for implementing the restoration activities;
- performance standards for determining success of the restoration sites;
- monitoring requirements and frequency;
- reporting requirements;
- long-term management and protection of the mitigation sites; and,
- funding of the implementation, long-term management, and protection of the mitigation sites.

LACFCD would conduct biological studies at potential mitigation site locations to ensure that the mitigation sites support conditions suitable for riparian habitat creation, restoration, and/or enhancement opportunities and would provide for wildlife movement preservation where the sites would be protected and managed.

As described above for Riparian Habitats, the success of projects that were required to create, restore, and/or enhance riparian habitats at a 1:1 mitigation ratio to compensate for impacts to riparian habitats and jurisdictional habitats has been documented in the comparative study conducted by researchers at UCLA and UCSF (Ambrose et al 2007). The success of permitted projects and the precedent set by the City of Riverside (described above under the heading for Riversidean Alluvial Fan Sage Scrub) and regulatory agencies for requiring a 1:1 mitigation ratio to compensate for impacts to riparian habitat, provides support that the 1:1 mitigation ratio required by MM BIO-7 and MM BIO-8 for the Proposed Project would result in the successful replacement of the same acreage of riparian habitats and CDFW jurisdictional areas that would be affected by the Proposed Project. Implementation of the specifications and management activities included in the Habitat Restoration Plan prepared by LACFCD for the Proposed Project and monitoring of the riparian habitat restoration and enhancement sites until they are successful by LACFCD would ensure the mitigation would fully offset the impacts of the Proposed Project.

The LACFCD will implement the measures necessary to achieve successful restoration and enhancement of riparian habitats and Riversidean Alluvial Fan Sage Scrub within CDFW jurisdictional areas. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of sensitive habitats, including riparian habitats and Riversidean Alluvial Fan Sage Scrub. The LACFCD will implement the

Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to CDFW jurisdiction at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, riparian habitats and Riversidean Alluvial Fan Sage Scrub can be successfully restored and enhanced. Successful restoration and enhancement of Riparian Woodland, Mule Fat Thickets, and Riversidean Alluvial Fan Sage Scrub and protection of these restored and enhanced habitats within CDFW jurisdiction would achieve not less than a 1:1 replacement, or no net loss of these habitats within CDFW jurisdiction. Therefore, implementation of Mitigation Measures MM BIO-7 and MM BIO-8 would reduce impacts to CDFW jurisdiction to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measures MM BIO-7 and BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

#### Mitigation Measures

**MM BIO – 6:** Riversidean Alluvial Fan Sage Scrub habitat shall be restored and/or enhanced at a 1:1 ratio by acreage. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of this sensitive habitat. Measures to achieve not less than a 1:1 replacement, or no net loss, of Riversidean Alluvial Fan Sage Scrub shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreage of Riversidean Alluvial Fan Sage Scrub.
- Identify and map the selected mitigation Areas where Riversidean Alluvial Fan Sage Scrub will be enhanced or restored shall be mapped using aerial photographs. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.
- Select offsite reference sites where Riversidean Alluvial Fan Sage Scrub is the established plant community. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, and native plant species richness (number of different plant species).
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant (if applicable) and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring methodologies,
  - Selection criteria of reference sites,
  - Performance standards of the mitigation sites,
  - Monitoring reports and annual reports schedule,
  - Mitigation long-term management plan, and
  - Funding description for implementation and long-term management.

- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites and to show that not less than a 1:1 replacement of sensitive habitats has been achieved.
- Quantitatively monitor the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of Riversidean Alluvial Fan Sage Scrub has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species for plant species which are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.

**MM BIO – 7:** Within 90 days prior to ground-disturbing activities, a qualified biologist shall conduct a tree survey within the project footprint to identify native city-protected trees that would ~~will~~ be removed or potentially affected by the Proposed Project, and native city-protected trees that can be avoided, and native city-protected trees that will require root zone protection. LACFCD would ~~will~~ replace native city-protected trees that cannot be avoided. The replacement is expected to be at a up to 1:1 ratio by canopy acreage. The biological monitor shall implement measures to protect the root zone of oak trees that may be impacted immediately adjacent to the project site and along access roads. The acreage occupied by the canopies of the native city-protected trees to be removed will determine the appropriate level of tree replacement. LACFCD shall identify tree replacement areas that are no less than the acreage of the native city-protected tree canopies to be removed. Priority for tree replacement locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed. The number of replacement trees installed by LACFCD will be greater than the number of trees to be removed should the replacement tree be smaller and younger than the tree to be removed. LACFCD shall monitor the survival of the replacement trees for 5 years and replace those that do not survive within the monitoring period, ensuring that not less than 1:1 ratio of replacement, or no net loss, has been achieved.



**MM BIO – 8:** A combination of onsite and offsite habitat restoration, enhancement, and exotic plant removal shall be implemented by LACFCD at a 1:1 ratio for impacted riparian habitat, sensitive natural communities, ~~habitat~~ and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic plant species removal. Non-native, weedy habitats within the basin shall be utilized whenever

possible as mitigation sites. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters. Measures to achieve not less than a 1:1 replacement, or no net loss, of riparian habitat, sensitive natural communities, and jurisdictional waters shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub), and jurisdictional waters (federally protected wetlands).
- Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.
- Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring methodologies,
  - Selection criteria of reference sites,
  - Performance standards of the mitigation sites,
  - Monitoring reports and annual reports schedule,
  - Mitigation long-term management plan, and
  - Funding description for implementation and long-term management.
- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Quantitatively This mitigation measure shall be monitored for success for five years following implementation the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:

- Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites.
- Add soil amendments if problem soils may be inhibiting plant growth.
- Replant if plant survival is low or to increase plant species cover or diversity.
- Install different plant species for plant species which are not surviving, and
- Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.
- Submit a A-report of the monitoring results shall be submitted annually, during the five years following implementation of the restoration and enhancement activities at the mitigation sites to resource agencies as required by the Section 401 Certification, Section 404 permit, and a Streambed Alteration Agreement until the mitigation sites have met the performance standards.

#### Residual Impacts After Mitigation

Impacts to riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations or by the CDFW or USFWS resulting from the Proposed Project and both management options would be reduced to a level below significance wWith implementation of Mitigation Measures MM BIO-67 through MM BIO-8, the Proposed Project under sediment removal and both management options will result in a less than significant impact to sensitive habitats. because LACFCD would successfully restore and enhance riparian habitat and Riversidean Alluvial Fan Sage Scrub in areas that would fall under the jurisdiction of the CDFW. LACFCD would monitor the mitigation sites until they are successful, and would provide long-term maintenance and management of the mitigation sites. The result would be a no net loss of these vegetation communities and CDFW jurisdictional areas. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

**BIOLOGY-3** *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

#### Sediment Removal/Reservoir Management

At Devil's Gate Reservoir, the OHWM of the reservoir is considered exists up to the 1020 contour line. Wetland Waters of the U.S., as defined by USACE, exists within the OHWM area of Devil's Gate Reservoir. The drainage and braided channel areas within Devil's Gate Reservoir were not delineated as Wetland Waters of the U.S. but they are considered Non-Wetland Waters of the U.S., which are also jurisdictional. Federally protected wetlands include both Wetland Waters of the U.S. and Non-Wetland Waters of the U.S. and the USACE All three agencies has jurisdiction over this wetland federally protected wetlands within the OHWM in the Proposed Project site where there will be permanent impacts. USACE, CDFW and RWQCB have jurisdiction of the riparian habitat within the proposed project boundary, up to the HWM.

Impacts to areas considered to be federally protected wetlands as defined by Section 404 of the Clean Water Act, and that fall under the jurisdiction of the USACE, are listed ~~jurisdictional waters were calculated within the Proposed Project site in Table 3.6-45, above, includes the jurisdictional acreages for USACE, RWQCB, and CDFW for waters and for vegetation impacts.~~ Approximately 46.8 acres of federally protected wetlands (11.2 acres of wetlands and 35.6 acres of jurisdictional areas associated with the main and braided channels), would be removed or disturbed during the sediment removal phase of the Proposed Project. Much of the vegetation located within the wetlands boundaries was either removed by the high storm flows or was buried by the influx of sediment into the reservoir immediately after large storms in 2010 (Section 3.6.2). Patches of Mule Fat Thickets and nonnative plants have become established on the deposited sediment in some areas within the wetlands boundaries (Figure 3.6-2).

Following the sediment removal phase for both Option 1 and Option 2 of the Proposed Project, storm flows would enter the reservoir and naturally reestablish jurisdictional braided channels through the area encompassed by the reservoir management area. For Option 2 of the Proposed Project, the reestablished jurisdictional channels in the area between the boundary of the reservoir management area (shown on Figure 3.6-5) and the upstream boundary of the Proposed Project site would not be disturbed following the completion of the initial sediment removal. Normal flood control operations under either Option 1 or Option 2 of the Proposed Project would potentially result in the reestablishment of wetlands in areas that are inundated for extended periods of time.

Impacts of the Proposed Project on areas considered to be federally-protected wetlands as defined by Section 404 of the Clean Water Act, and that fall under the jurisdiction of the USACE, ~~to jurisdictional waters found within these water features~~ would result in a significant impact requiring mitigation. ~~To minimize impacts due to loss of jurisdictional waters, Mitigation Measure MM-BIO-8 has been provided.~~

A Section 404 permit would be required from the USACE prior to the implementation of the Proposed Project. The sediment removal activities proposed in Devil's Gate Reservoir would potentially qualify for a Nationwide Permit (NWP) 31, which covers Maintenance of Existing Flood Control Facilities, but the decision on the type of permit (General or Individual Permit) issued for impacts to the jurisdictional areas would be at the discretion of the USACE.

As required by Section 404, the LACFCD would submit a permit application to notify the USACE about the potential impacts of the Proposed Project on federally-protected wetlands prior to project implementation. The LACFCD and USACE would coordinate together regarding the locations of the onsite and offsite mitigation areas. LACFCD would conduct studies at selected mitigation site locations, including biological surveys, jurisdictional delineations, and hydrology studies, to ensure that the mitigation sites would support the suitable conditions for wetlands establishment, reestablishment, rehabilitation, and/or enhancement. The USACE would determine the mitigation ratio and the amount of compensatory mitigation required to mitigate under Section 404 of the Clean Water Act, which may or may not be the same as the mitigation ratio determined to be adequate under CEQA. The priority for determining mitigation site locations for unavoidable impacts would be onsite (for the Proposed Project and Alternatives), offsite within the Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed. Compensatory mitigation will include:

- establishment in areas where federally protected wetlands do not currently exist;
- reestablishment in areas where federally protected wetlands once existed but may have since been removed or disturbed;

- rehabilitation in areas where the functions of federally protected wetlands have been diminished; and,
- enhancement of existing federally protected wetlands areas where nonnative and invasive plants occur.

As required by the 404 Permit application, the LACFCD would prepare a Habitat Restoration Plan or Habitat Mitigation and Monitoring Plan (USACE 2015) that would include the information related to the methods for implementing the restoration activities at the mitigation sites, establishing performance standards, conducting monitoring (quantitative, qualitative, and functional) and maintenance, identifying adaptive management measures, and preparing annual reports. The plans would also describe the long-term management and protection of the mitigation sites as well as the funding necessary to cover the implementation and long-term management.

As described above under **BIOLOGY-2**, the success of projects that were required to create, restore, and/or enhance federally protected wetlands at a 1:1 mitigation ratio to compensate for impacts to jurisdictional habitats has been documented in the comparative study conducted by researchers at UCLA and UCSF (Ambrose et al 2007). The success of permitted projects and the precedent set by the City of Riverside (described above for Riversidean Alluvial Fan Sage Scrub) and regulatory agencies for requiring a 1:1 mitigation ratio to compensate for impacts to riparian habitat and jurisdictional habitats, provides support that the 1:1 mitigation ratio required by MM BIO-8 for the Proposed Project would result in the successful replacement of the same acreage of federally protected wetlands that would be affected by the Proposed Project. Implementation of the specifications and management activities included in the Habitat Mitigation and Monitoring Plan prepared by LACFCD for the Proposed Project and monitoring of the mitigation sites until they are successful by LACFCD would ensure the mitigation would fully offset the impacts of the Proposed Project.

Implementation of Mitigation Measure MM BIO-8 would reduce impacts to federally protected wetlands and other USACE jurisdictional areas to a level below significance under CEQA and would result in a no net loss of federally protected wetlands.

The LACFCD will implement successful establishment, reestablishment, rehabilitation, and enhancement of 46.8 acres of federally protected wetlands. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Mitigation and Monitoring Plan (HMMP) that will outline the means and methods of successful establishment, reestablishment, rehabilitation, and enhancement of federally protected wetlands. The LACFCD will implement the HMMP, and will monitor and apply adaptive management as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to federally-protected wetlands at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented by other agencies, wetlands can be successfully established, reestablished, rehabilitated, and enhanced. Successful establishment, reestablishment, rehabilitation, and enhancement of areas that fall under USACE jurisdiction would achieve not less than 1:1 replacement, or no net loss, of federally protected wetlands. Therefore, implementation of Mitigation Measure MM-BIO-8 would reduce impacts to federally protected wetlands to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

## Mitigation Measures

See Mitigation Measure MM BIO-8.

## Residual Impacts After Mitigation

~~As noted in Mitigation Measure MM BIO-8, wetlands and drainages under the jurisdiction of CDFW, USACE, and RWQCB will be restored and/or enhanced on the Proposed Project site. With implementation of these mitigation measures, impacts to riparian habitats will be reduced to a level below significance.~~

Impacts to federally protected wetlands resulting from the Proposed Project and both management options would be reduced to a level below significance with implementation of Mitigation Measure MM BIO-8 because LACFCD would successfully establish, reestablish, rehabilitate, and enhance federally protected wetlands, would monitor the mitigation sites until they achieve the established performance standards, and would provide long-term management and protection of the mitigation sites. The result would be a no net loss of acreage or functions of federally protected wetlands. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

**BIOLOGY-4** *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

## Sediment Removal/Reservoir Management

The Proposed Project area is predominantly open for wildlife movement and habitat connectivity. Implementation of the Proposed Project would remove vegetation within the Proposed Project site that provides habitat where wildlife species may seek cover or foraging opportunities while moving through during migration or as they travel to or from different parts of their territories. Removal of the vegetation would also eliminate habitat that may be used by wildlife for nursery sites. The vegetation located outside of the boundary of the Proposed Project would not be affected and would continue to provide cover and foraging opportunities and nursery sites for wildlife as they move through the area. Sediment removal activities will not be continuous, as excavation is expected to occur only during in the drier months (April to December, excluding holidays). In addition, sediment removal activities would not completely block the Proposed Project site from surrounding habitat, and, because the activities would only occur only during the day, and they would not interfere with nighttime wildlife activity. Although some wildlife may be temporarily displaced from areas where equipment is operating during the construction associated with the initial sediment removal and during reservoir management, wildlife would not be physically prevented from moving around and into the basin area. After the sediment removal phase is completed and after the annual reservoir management activities are completed, equipment will no longer be operating and wildlife would be able to travel unimpeded through the Proposed Project site. With the Proposed Project, Option 2, the LACFCD would restore native riparian habitat and Riversidean Alluvial Fan Sage Scrub in the 29-acre area located between the boundary of the Reservoir Management Area and the upstream boundary of the Proposed Project site (see the descriptions above in BIOLOGY-2). LACFCD would implement habitat restoration and habitat enhancement at onsite and offsite locations to create additional cover, foraging, and nursery sites for wildlife as they move through during migration or as they travel to and from parts of their territories. The priority for determining mitigation site locations for unavoidable impacts would be onsite (for the Proposed Project and Alternatives), offsite within the Arroyo Seco subwatershed, and offsite within the

greater Los Angeles River watershed. Sediment removal and reservoir management activities would remove vegetation used for cover, foraging, and nursery sites and interfere temporarily with the movement of native resident or migratory wildlife species, resulting in a significant impact. Reduction in

~~sensitive habitat would interfere with use of the habitat for wildlife nursery sites, resulting in a significant impact.~~ To minimize impacts to less than significant, Mitigation Measures MM BIO-1 through MM BIO-8 have been provided.

#### Mitigation Measures

See Mitigation Measures MM BIO-1 through MM BIO-8.

#### Residual Impacts After Mitigation

Impacts to movement of native resident and migratory wildlife species, wildlife corridors, and use of the habitat for wildlife nursery sites resulting from the Proposed Project and both management options would be reduced to a level below significance wWith implementation of Mitigation Measures MM BIO-1 through MM BIO-8, ~~impacts to use of the habitat for wildlife nursery sites will be reduced to a level below significance.~~ because LACFCD would avoid working during nighttime hours, would provide protection of nesting sites during construction, would restore and enhance riparian habitat and Riversidean Alluvial Fan Sage Scrub, would monitor the mitigation sites until they are successful, and would provide long-term maintenance and management of the mitigation sites. The result would be a no net loss of riparian habitat and Riversidean Alluvial Fan Sage Scrub that can be used for wildlife movement and wildlife nursery sites. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

**BIOLOGY-5** *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

#### Sediment Removal/Reservoir Management

##### City Trees and Trees Protection Ordinance – City of Pasadena

Implementation of the Proposed Project would impact trees protected by the City of Pasadena City Trees and Tree Protection Ordinance. Removal of sediment and construction of the access roads into the Proposed Project site may impact oak trees and other native and nonnative trees protected by the City Trees and Tree Protection Ordinance. However, the Proposed Project would not be subject to the provisions of the Pasadena City Trees and Tree Protection Ordinance because the LACFCD was created by State legislation to implement State-designated objectives of flood control and water conservation within the boundaries of the LACFCD. When implementing State-designated objectives, the LACFCD is not subject to local ordinances like the Pasadena City Trees and Tree Protection Ordinance.

Even though the LACFCD is not subject to the Pasadena City Trees and Tree Protection Ordinance, implementation of the Proposed Project would remove native trees from the Proposed Project site that are of local concern and this would potentially be considered a significant impact. Implementation of Mitigation Measure MM BIO-7 ~~will~~ would identify native city-protected trees that ~~will~~ would be removed or potentially affected, and need root zone protection or native city-protected trees that would be removed. The acreage occupied by the canopies of the identified trees to be removed would determine the appropriate level of tree replacement, and protection of the root zones of oak trees. LACFCD would identify onsite tree replacement areas that are of the same size as the acreage occupied by the canopies of the affected trees. The number of replacement trees installed by LACFCD would be greater than the number of trees to be removed should the replacement tree be smaller and younger than the tree to be removed. LACFCD would monitor the survival of the trees for five years and would



replace those that do not survive during the monitoring period, ensuring that a 1:1 ratio of replacement by acreage is met. Implementation of this mitigation measure would reduce impacts to city-protected trees to a level below significance because more trees would be planted than would be lost from implementation of the Proposed Project. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-7 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

#### Mitigation Measures

See Mitigation Measure MM BIO-7.

#### Residual Impacts After Mitigation

Impacts of the Proposed Project and both management Options 1 and 2 on local policies or ordinances protecting biological resources, such as the City of Pasadena City Trees and Tree Protection Ordinance, would be reduced to a level below significance with implementation of Mitigation Measure MM BIO-7 because the LACFCD would install enough trees to cover the same size area occupied by the canopies of the affected trees resulting in more trees planted than removed, and LACFCD would protect the root zones of oak trees. Mitigation Measure BIO-7 would achieve not less than 1:1 replacement, or no net loss, of native city-protected trees and no net loss of the acreage occupied by those trees. ~~the Proposed Project would result in a less than significant impact to city-protected trees.~~ These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

#### **BIOLOGY-6** *Cumulative Impacts*

No significant impacts to biological resources are expected with construction of the NASA JPL On-Site Parking Structure. Therefore, less than significant cumulative impacts to biological resources would occur.

Impacts to biological resources associated with the Hahamongna Watershed Park MBMU Project are in the process of being evaluated, and potential impacts are not known at this time. Impacts to biological resources associated with the Arroyo Seco Canyon Project are also not known at this time. It is possible that either of these projects could result in impacts to special status species, riparian habitat and other sensitive natural communities, the movement of native resident or migratory wildlife species, and city-protected trees, resulting in significant cumulative impacts. After implementation of Mitigation Measures MM BIO-1 through BIO-8, the Proposed Project would have a less-than-significant impact to biological resources. Impacts to biological resources from the Hahamongna Watershed Park MBMU Project and the Arroyo Seco Canyon Project would be evaluated through project-specific CEQA documents, and if found significant, would be required to implement all feasible mitigation measures. Therefore, significant cumulative impacts to biological resources would not occur.

Impacts to biological resources associated with ~~and~~ the Devil's Gate Water Conservation Project cannot be quantified ~~are also not known~~ at this time because the final design for this project has not been developed or approved. However, LACFCD's concept for the Devil's Gate Water Conservation Project includes installing a pump station and intake structure at Devil's Gate Dam and potentially conducting an outlet structure in Eaton Wash (See Figures 3.6-6 through 3.6-8). Approximately five miles of pipeline would be installed in road rights-of-way through the City of Pasadena and County unincorporated areas. Figure 3.6-6 shows the potential routes of the pipeline for three conceptual alignments for the Water

Conservation Project. The concept includes installing a pump station on the face of the dam (Figure 3.6-7) or an intake structure at the existing outlet tunnel (Figure 3.6-8). The conceptual pipeline would extend from the pump to a valve box that would be constructed in the disturbed area adjacent to the access road near the west side of the top of the dam. Construction of the pump station, pipeline, and valve vault would not result in impacts to biological resources because the areas where impacts would occur are disturbed and they do not support any vegetation. Installing the pipeline in the rights-of-way along the edges of existing roads would minimize impacts to biological resources, special status species, riparian habitat and other sensitive natural communities, movement of native resident or migratory wildlife species, and city-protected trees. Depending on the resources that would be disturbed by the final design, it is possible that either of these projects the Devil's Gate Water Conservation Project combined with the Proposed Project could potentially result in cumulatively considerable significant cumulative impacts to special status species, riparian habitat and other sensitive natural communities, the movement of native resident or migratory wildlife species, and city-protected trees., resulting in significant cumulative impacts. The actual impacts of the Devil's Gate Water Conservation Project on biological resources would be evaluated in a CEQA document once the final design has been selected and that project moves forward. Project specific mitigation measures would be developed for that project. However, should the Water Conservation Project go forward, Mitigation Measures BIO-1 through BIO-8 would be implemented as part of the project. Implementation of MMs BIO-1 through BIO-8 and any other project specific mitigation measures developed in the CEQA document prepared for the Devil's Gate Water Conservation Project would reduce the impacts on biological resources resulting from the Water Conservation Project to a level of less than significant. Implementation of the mitigation measures would also reduce the contribution from the Proposed Project and the Water Conservation Project to cumulative impacts on biological resources to less than cumulatively considerable and therefore, less than significant.

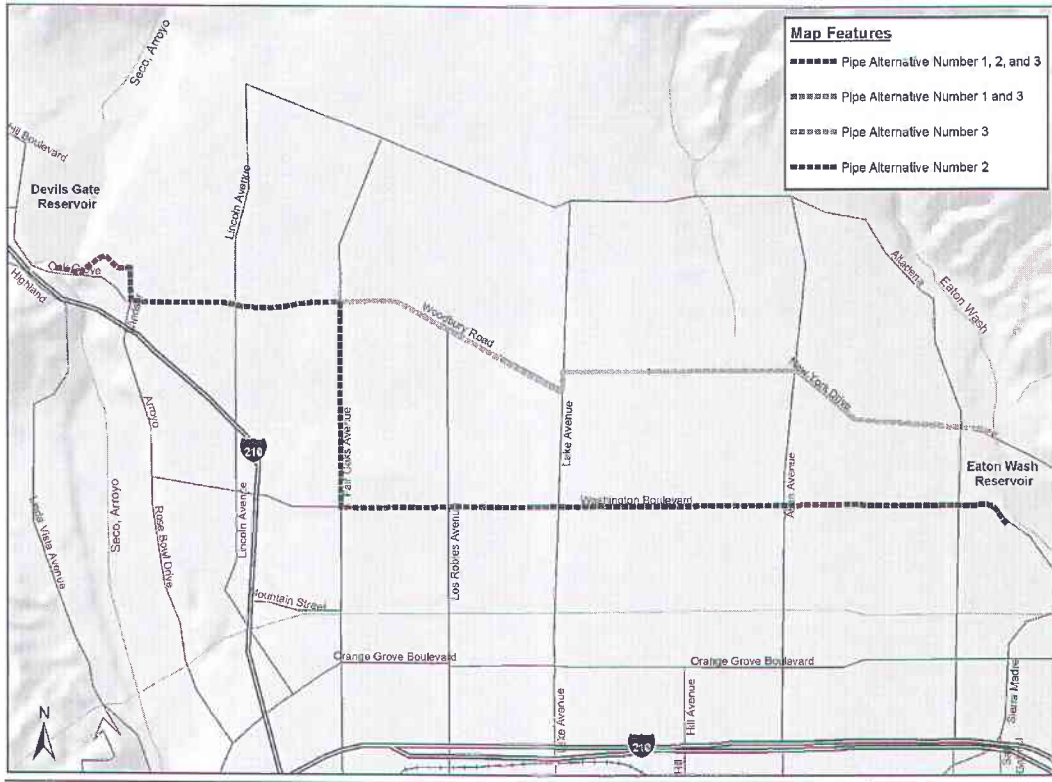
#### Mitigation Measure

See Mitigation Measures MM BIO-1 through MM BIO-8.

Residual Impacts After Mitigation

Implementation of Mitigation Measures MM BIO-1 through MM BIO-8 for both the Proposed Project and the Devil's Gate Water Conservation Project would reduce the Proposed Project's contribution to cumulative impacts less than cumulatively considerable and therefore to a level below significance. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

**Figure 3.6-6. Water Conservation Project Alignment Overview**



**Figure 3.6-7. Water Conservation Project Pump Station Alternative 1**

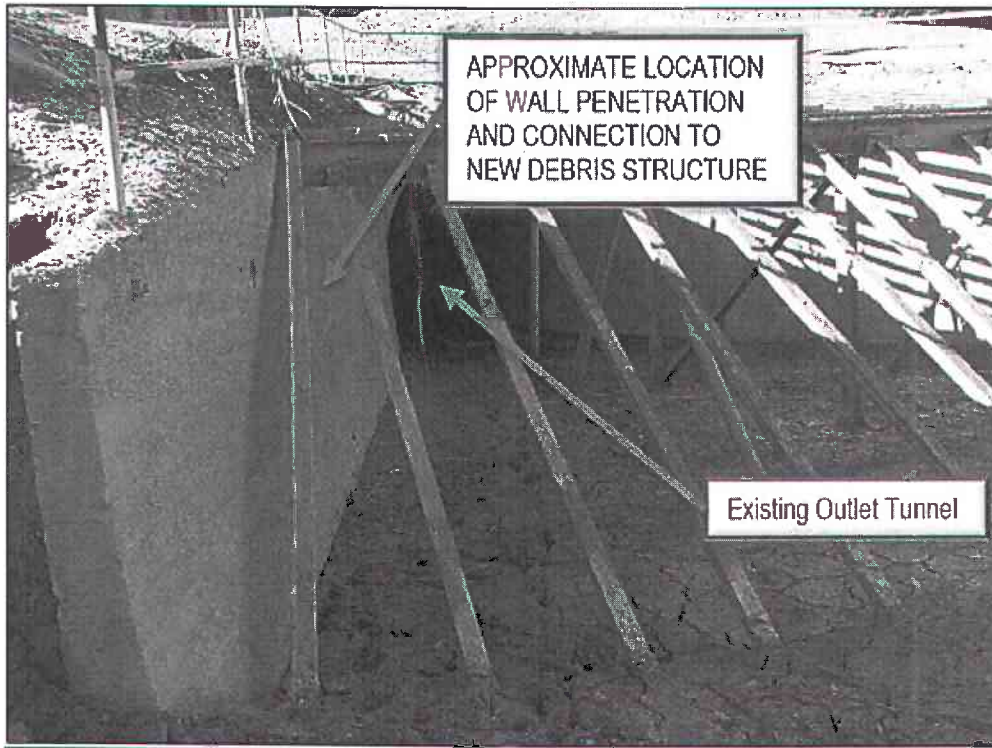


**Pump Station Alternative 1 Location (Section View)**

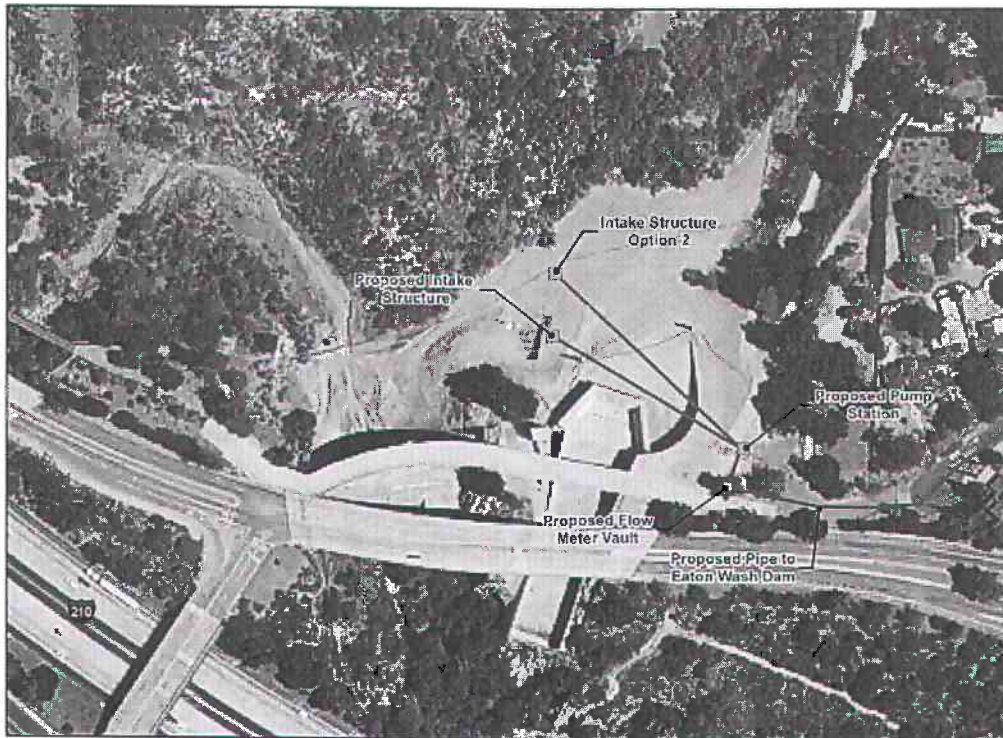


**Pump Station Alternative 1 Profile**

**Figure 3.6-8. Water Conservation Project Pump Station Alternative 2**



**Pump Station Alternative 2 Pipe Inlet Location**



**Pump Station Alternative 2 Profile**

**Section 4.6.3 ALTERNATIVE 3, CONFIGURATION D –  
Impacts Analysis and Comparison to Proposed Project**

**Page 431**

## **AIR QUALITY**

### **AIR QUALITY- 1** *Conflict with or obstruct implementation of the applicable air quality plan.*

#### *Sediment Removal/Reservoir Management*

Typically, assessments for air quality plan consistency use four criteria for determining project consistency with the current AQMP. The first and second criteria are from the SCAQMD. According to the SCAQMD, two key criterion of AQMP consistency are: (1) whether the project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP; and (2) whether the project will exceed the assumptions in the AQMP based on the year of project build-out and phase (SCAQMD 2006). The third criterion is compliance with the control measures in the AQMP. The fourth criterion is compliance with the SCAQMD regional thresholds.

As with the Proposed Project (see Section 3.5.6), Alternative 3, Configuration D will be consistent with the second through fourth criteria but will not be consistent with the first criterion. This is due to emissions of NO<sub>x</sub> exceeding the Daily Regional Threshold during sediment removal, resulting in a potentially significant impact. Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of Alternative 3, Configuration D's combined NO<sub>x</sub> emissions during sediment removal. Therefore, impacts during sediment removal will be less than significant. This impact will be reduced in comparison to the Proposed Project due to the reduction in excavation area and associated sediment removal activities.

As with the Proposed Project, reservoir management for Alternative 3, Configuration D will not exceed any standard and will result in less than significant impacts.

#### *Mitigation Measures*

**MM AQ-1:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use only sediment removal dump trucks that meet EPA's emission standards for Model Year ~~2007~~2010 or later.

**MM AQ-2:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment.

#### *Residual Impacts After Mitigation*

Implementation of these mitigations would reduce the combined NO<sub>x</sub> emissions of Alternative 3, Configuration D during the sediment removal phase to a level of less than significant. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

Reservoir management activities will not violate an air quality standard or contribute substantially to an existing or projected air quality violation; therefore, during reservoir management Alternative 3, Configuration D will be consistent with the first indicator. No significant impact would occur.



**Section 4.6.3 ALTERNATIVE 3, CONFIGURATION D –  
Impacts Analysis and Comparison to Proposed Project**

**Pages 445 – 452**

- Allowing the tree to remain in place to 24 to 48 hours until inspected by the qualified biologist for presence or absence of roosting bats
- The qualified biologist shall document all bat survey, monitoring, and protection measure activities and prepare a summary report for LACFCD.

#### *Residual Impacts after Mitigation*

Alternative 3, Configuration D will result in a less than significant impact on candidate, sensitive, or special status species.

#### *Comparison to Proposed Project and Other Alternatives*

Alternative 3, Configuration D is considered environmentally superior to the Proposed Project with respect to impacts to candidate, sensitive, or special status species due to the reduction in sediment removal and reservoir management areas and associated activities.

Due to the reduction in sediment removal and reservoir management areas and associated activities, Alternative 3, Configuration D will also be environmentally superior to Alternative 1, Configuration B; Alternative 2, Configuration C; and Alternative 5, Haul Route Alternative. Alternative 3, Configuration D will also potentially be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment deposits to develop along the route to the ocean. This would result in need for sediment removal and impacts to downstream habitats associated with removal activities.

Alternative 3, Configuration D will be environmentally superior to Alternative 6, No Project Alternative, as habitat in the reservoir will likely degrade under Alternative 6, No Project Alternative due to continuous sediment deposition and degradation that will increase over time.

**BIOLOGY-2** *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

#### *Sediment Removal/Reservoir Management*

Alternative 3, Configuration D, Option 1 and Alternative 3 Configuration D, Option 2 will impact approximately 0.4 acre of Riversidean Alluvial Fan Sage Scrub within the Proposed Project site. Impacts to Riversidean Alluvial Fan Sage Scrub will result in a potentially significant impact requiring mitigation; however, disturbance of this community will be reduced by approximately 0.7 acres (64 percent) as compared to the Proposed Project (Table 4.6-5). ~~To minimize impacts due to~~ To compensate for the loss of Riversidean Alluvial Fan Sage Scrub, the LACFCD would restore and enhance Riversidean Alluvial Fan Sage Scrub habitat either onsite or offsite to achieve not less than a 1:1 replacement, or no net loss, of Riversidean Alluvial Fan Sage Scrub Mitigation Measure (MM BIO-6) has been provided. ~~Removing the sediment will benefit the alluvial fan sage scrub since the habitat is currently buried under sediment and therefore considered poor quality. With implementation of this mitigation measure, impacts to Riversidean Alluvial Fan Sage Scrub will be reduced to a level below significance.~~

Alternative 3, Configuration D, Option 1 will impact approximately 2.1 acres of Coastal Sage Scrub and Alternative 3 Configuration D, Option 2 will impact approximately 0.9 acre of Coastal Sage Scrub within the Proposed Project site. Impacts to Coastal Sage Scrub will result in a potentially significant impact requiring mitigation. However, disturbance of this community with Option 1 will be reduced by approximately 1.0 acre (32 percent) and with Option 2, disturbance to this community will be reduced by approximately 2.2 acres (71 percent) as compared to the Proposed Project (Table 4.6-5). To compensate for the loss of Coastal Sage Scrub,

the LACFCD would restore and enhance Coastal Sage Scrub habitat either onsite or offsite to achieve not less than a 1:1 replacement, or no net loss, of Coastal Sage Scrub (MM BIO-8).

Alternative 3, Configuration D, Option 1 will impact approximately 35.0 acres of riparian habitat (28.9 acres of Riparian Woodland and 6.1 acres of Mule Fat Thickets) ~~within the Proposed Project site~~, while Alternative 3, Configuration D, Option 2 will impact approximately 32.6 acres of riparian habitat (28.9 acres of Riparian Woodland and 3.7 acres of Mule Fat Thickets) (Table 4.6-5). Riparian Woodland and Mule Fat Thickets are rare plant communities that provide nesting habitat for riparian species. Impacts to these habitats will result in a potentially significant impact; however, disturbance of Riparian Woodland and

Mule Fat Thickets under Option 1 will be reduced by approximately 22.5 acres (44 percent) and 5.0 acres (54 percent), respectively, as compared to the Proposed Project. In comparison, disturbance of Riparian Woodland and Mule Fat Thickets under Alternative 3, Configuration D, Option 2 will be reduced by approximately 22.5 acres (44 percent) and 7.4 acres (67 percent), respectively as compared to the Proposed Project. To compensate for minimize impacts due to the loss of riparian habitats (Riparian Woodland and Mule Fat Thickets), the LACFCD would restore and enhance riparian habitats either onsite or offsite to achieve not less than a 1:1 replacement, or no net loss, of riparian habitats (Riparian Woodland and Mule Fat Thickets) Mitigation Measures (MM BIO-7 and MM BIO-8) have been provided. With implementation of this mitigation measure, impacts to Riparian Woodland and Mule Fat Thickets will be reduced to a level below significance.

Figure 4.6-12: Alternative 3, Configuration D, Option 1 Impacted Water Features and Figure 4.6-13: Alternative 3, Configuration D, Option 2 show the boundaries of the areas and water features that will be impacted. CDFW jurisdiction includes the water features shown on these maps plus the habitat areas located outside of these features and within the boundaries of the alternatives. Alternative 3, Configuration D, Option 1 would impact approximately 75.5 acres of CDFW jurisdiction while Option 2 would impact approximately 70.8 acres of CDFW jurisdiction. Compared to the Proposed Project, Alternative 3, Configuration D, Option 1 and Alternative 3, Configuration D, Option 2 will reduce impacts to these CDFW jurisdiction, including the water features, by approximately 19 36 percent and 40 percent, respectively. To compensate for the minimize impacts to habitats within CDFW jurisdiction found within these water features boundaries of the two options for Alternative 3, Configuration D, the LACFCD would restore and enhance riparian habitats and other sensitive natural communities within onsite or offsite CDFW jurisdictional areas to achieve not less than a 1:1 replacement, or no net loss, of these habitats within CDFW jurisdictional areas Mitigation Measure (MM BIO-8) has been provided. With implementation of this mitigation measure, impacts will be reduced to a level below significance

As stated above in the discussion of impacts from Alternative 3, Configuration D (Options 1 and 2) to Riversidean Alluvial Fan Sage Scrub, riparian habitats, sensitive natural communities, and these habitats within CDFW jurisdictional areas, the LACFCD will implement the measures necessary to achieve successful restoration and enhancement of these plant communities within areas under the jurisdiction of CDFW. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of sensitive habitats, including riparian habitats (Riparian Woodland and Mule Fat Thickets), Riversidean Alluvial Fan Sage Scrub, and Coastal Sage Scrub. The LACFCD will implement the Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to riparian habitats, sensitive natural communities, and habitats within CDFW jurisdictional areas at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, riparian habitats (Riparian Woodland and Mule Fat Thickets), Riversidean Alluvial Fan Sage Scrub, and Coastal Sage Scrub can be successfully restored and enhanced. Successful restoration and enhancement of riparian habitats, Riversidean Alluvial Fan Sage Scrub, and Coastal Sage Scrub in areas that fall under CDFW jurisdiction would achieve not less than a 1:1 replacement, or no net loss, of these plant communities and CDFW jurisdiction. Therefore, implementation of Mitigation Measures MM-BIO-6, MM BIO-7, and MM BIO-8 would reduce impacts to riparian habitats, Riversidean Alluvial Fan Sage Scrub, and Coastal Sage Scrub within CDFW jurisdiction to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measures BIO-6, MM BIO-7, and MM BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a

higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

### *Mitigation Measures*

**MM BIO – 6:** Riversidean Alluvial Fan Sage Scrub habitat shall be restored and/or enhanced at a 1:1 ratio by acreage. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of this sensitive habitat. Measures to achieve not less than a 1:1 replacement, or no net loss, of Riversidean Alluvial Fan Sage Scrub shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreage of Riversidean Alluvial Fan Sage Scrub.
- Identify and map the selected mitigation Areas where Riversidean Alluvial Fan Sage Scrub will be enhanced or restored shall be mapped using aerial photographs. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.
- Select offsite reference sites where Riversidean Alluvial Fan Sage Scrub is the established plant community. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, and native plant species richness (number of different plant species).
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant (if applicable) and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring methodologies,
  - Selection criteria of reference sites,
  - Performance standards of the mitigation sites,
  - Monitoring reports and annual reports schedule,
  - Mitigation long-term management plan, and
  - Funding description for implementation and long-term management.
- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites and to show that not less than a 1:1 replacement of sensitive habitats has been achieved.
- Quantitatively monitor the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of Riversidean Alluvial Fan Sage Scrub has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,

- Add soil amendments if problem soils may be inhibiting plant growth,
- Replant if plant survival is low or to increase plant species cover or diversity,
- Install different plant species for plant species which are not surviving, and
- Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.

**MM BIO – 7:** Within 90 days prior to ground-disturbing activities, a qualified biologist shall conduct a tree survey within the project footprint to identify native city-protected trees that would ~~will~~ be removed or potentially affected by the Proposed Project, ~~and~~ native city-protected trees that can be avoided, and native city-protected trees that will require root zone protection. LACFCD would ~~will~~ replace native city-protected trees that cannot be avoided. The replacement is expected to be at a ~~up to~~ 1:1 ratio by canopy acreage. The biological monitor shall implement measures to protect the root zone of oak trees that may be impacted immediately adjacent to the project site and along access roads. The acreage occupied by the canopies of the native city-protected trees to be removed will determine the appropriate level of tree replacement. LACFCD shall identify tree replacement areas that are no less than the acreage of the native city-protected tree canopies to be removed. Priority for tree replacement locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed. The number of replacement trees installed by LACFCD will be greater than the number of trees to be removed should the replacement tree be smaller and younger than the tree to be removed. LACFCD shall monitor the survival of the replacement trees for 5 years and replace those that do not survive within the monitoring period, ensuring that not less than 1:1 ratio of replacement, or no net loss, has been achieved.

**MM BIO – 8:** A combination of onsite and offsite habitat restoration, enhancement, and exotic plant removal shall be implemented by LACFCD at a 1:1 ratio for impacted riparian habitat, sensitive natural communities, ~~habitat~~ and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic plant species removal. Non-native, weedy habitats within the basin shall be utilized whenever possible as mitigation sites. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters. Measures to achieve not less than a 1:1 replacement, or no net loss, of riparian habitat, sensitive natural communities, and jurisdictional waters shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub), and jurisdictional waters (federally protected wetlands).
- Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for

mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed. Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.

- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring methodologies,
  - Selection criteria of reference sites,
  - Performance standards of the mitigation sites,
  - Monitoring reports and annual reports schedule,
  - Mitigation long-term management plan, and
  - Funding description for implementation and long-term management.
- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Quantitatively This mitigation measure shall be monitored for success for five years following implementation the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species if certain plant species are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.

- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.
- Submit a A-report of the monitoring results shall be submitted annually, during the five years following implementation of the restoration and enhancement activities at the mitigation sites, to resource agencies as required by the Section 401 Certification, Section 404 permit, and a Streambed Alteration Agreement until the mitigation sites have met the performance standards.

#### *Residual Impacts after Mitigation*

Impacts to riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service resulting from the Under sediment removal and reservoir maintenance, Alternative 3, Configuration D would be reduced to a level below significance with implementation of Mitigation Measures MM BIO-6 through MM BIO-8 will result in a less than significant impact on riparian habitat and other sensitive natural communities because LACFCD would successfully restore and enhance riparian habitats (Riparian Woodland and Mule Fat Thickets), Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub in areas that would fall under the jurisdiction of the CDFW. In addition, LACFCD would quantitatively monitor the mitigation sites and apply adaptive management measures, as applicable, until the established performance standards are met. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to riparian habitats (Riparian Woodland and Mule Fat Thickets), Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub in areas that would fall under the jurisdiction of the CDFW at alternative sites and will monitor those sites until the established performance standards are achieved. LACFCD would also provide long-term management and protection of the mitigation sites to achieve not less than a 1:1 replacement, or no net loss, of these sensitive habitats and CDFW jurisdictional areas. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.





Surveyor Rd

Viking Rd

Loop Rd

Oak Grove Dr

Arroyo Seco Dist Ranger Sta

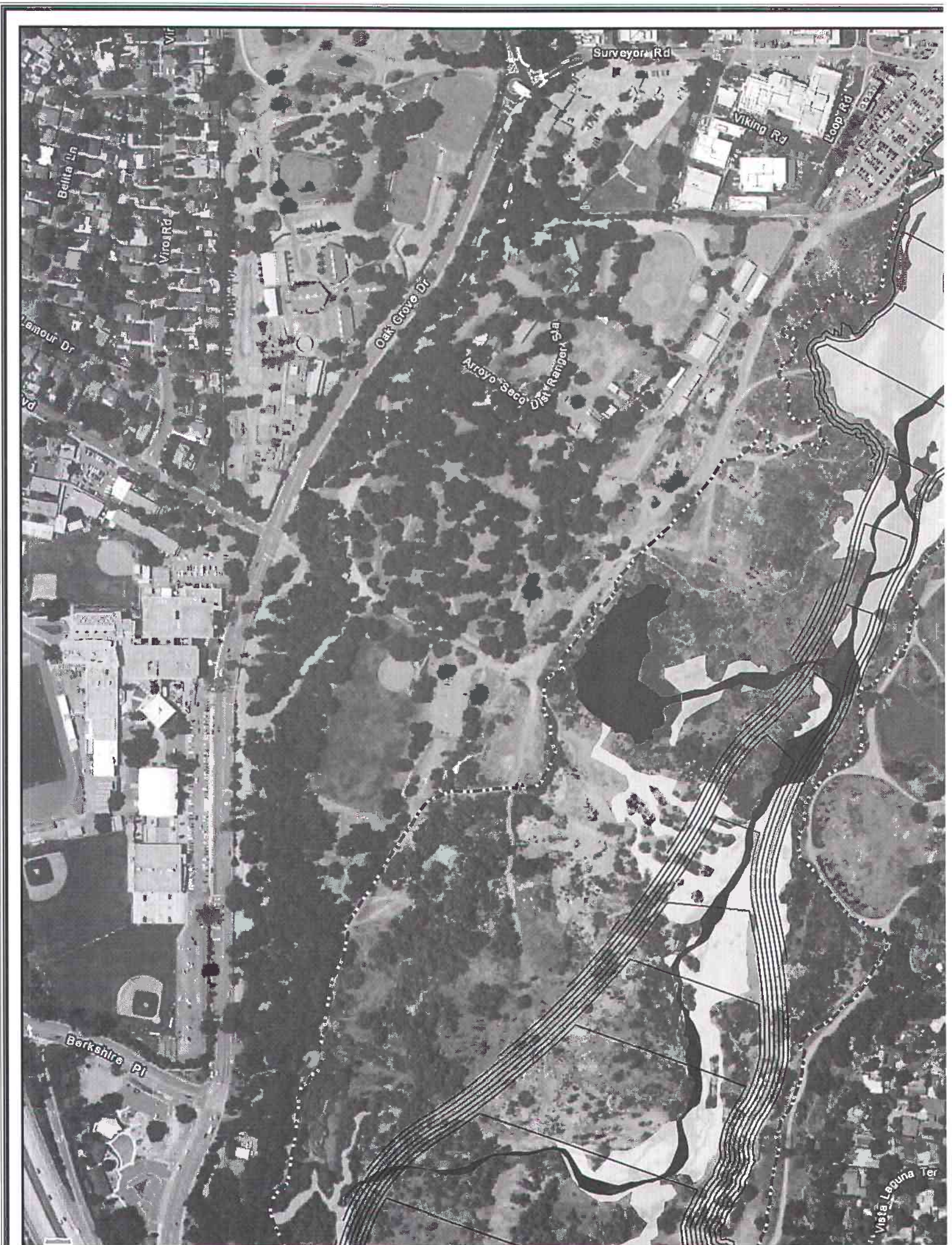
Belita Ln

Viro Rd

Amour Dr

Berkshiro Pl

Vista Louisa Ter



Bella Ln

Viro Rd

Lamour Dr

Oak Grove Dr

Arroyo Seco Dr  
Ranger St

Surveyor Rd

Viking Rd

Loop Rd

Berkshire Pl

Vista Lapuna Ter

### *Comparison to Proposed Project and Other Alternatives*

Alternative 3, Configuration D is considered environmentally superior to the Proposed Project with respect to impacts to riparian habitat, and other sensitive natural communities, and CDFW jurisdictional areas due to the reduction in sediment removal and reservoir management areas and associated activities and increased opportunities for restoration and/or enhancement.

Due to the reduction in sediment removal and reservoir management areas and associated activities and increased opportunities for restoration and/or enhancement, Alternative 3, Configuration D will also be environmentally superior to Alternative 1, Configuration B; Alternative 2, Configuration C; and Alternative 5, Haul Route Alternative. Alternative 3, Configuration D will also potentially be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment deposits to develop along the route to the ocean. This would result in need for sediment removal and impacts to downstream habitats associated with removal activities.

Alternative 3, Configuration D will be environmentally superior to Alternative 6, No Project Alternative, as habitat in the reservoir will likely degrade under Alternative 6, No Project Alternative due to continuous sediment deposition and degradation that will increase over time.

**BIOLOGY-3** *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

### *Sediment Removal/Reservoir Management*

Figures 4.6-12 and 4.6-13, above, show the water features that will be impacted by this alternative. Compared to the Proposed Project, Alternative 3, Configuration D will reduce impacts to these water features by approximately 19 percent. To minimize impacts to jurisdictional waters found within these water features, As stated for the Proposed Project, the LACFCD will implement successful establishment, reestablishment, rehabilitation, and enhancement of federally protected wetlands to compensate for impacts associated with Alternative 3, Configuration D. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Mitigation and Monitoring Plan (HMMP) that will outline the means and methods of successful establishment, reestablishment, rehabilitation, and enhancement of federally protected wetlands. The LACFCD will implement the HMMP and will monitor and apply adaptive management, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to federally-protected wetlands at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented by other agencies, federally protected wetlands can be successfully established, reestablished, rehabilitated, and enhanced. Successful establishment, reestablishment, rehabilitation, and enhancement of federally-protected wetlands would achieve not less than 1:1 replacement, or no net loss, of federally protected wetlands. Therefore, implementation of Mitigation Measure MM BIO-8 has been provided. With implementation of this mitigation measure, impacts will be reduced would reduce impacts to federally protected wetlands to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

### *Mitigation Measures*

See Mitigation Measure MM BIO-8 above.

### *Residual Impacts After Mitigation*

As noted in MM BIO-8, wetlands and drainages under the jurisdiction of CDFW, USACE, and RWQCB will be restored and/or enhanced in onsite and potentially offsite areas on the Proposed Project site. With implementation of these mitigation measures, impacts to federally protected wetlands resulting from the Alternative 3, Configuration D will ~~will~~ would be reduced to a level below significance with implementation of Mitigation Measure MM BIO-8 because LACFCD would successfully establish, reestablish, rehabilitate, and enhance federally protected wetlands to achieve not less than a 1:1 replacement, or no net loss, of federally protected wetlands. In addition, LACFCD would quantitatively monitor the mitigation sites and apply adaptive management measures, as applicable, until the established performance standards are met. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to federally protected wetlands at alternative sites and will monitor those sites until the established performance standards are achieved. LACFCD would also provide long-term management and protection of the mitigation sites. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

### *Comparison to Proposed Project and Other Alternatives*

Alternative 3, Configuration D is considered environmentally superior to the Proposed Project with respect to impacts on federally protected wetlands due to the reduction in sediment removal and reservoir management areas and associated activities and increased opportunities for restoration and/or enhancement.

Due to the reduction in sediment removal and reservoir management areas and associated activities and increased opportunities for restoration and/or enhancement, Alternative 3, Configuration D will also be environmentally superior to Alternative 1, Configuration B; Alternative 2, Configuration C; and Alternative 5, Haul Route Alternative. Alternative 3, Configuration D will also potentially be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment deposits to develop along the route to the ocean. This would result in need for sediment removal and impacts to downstream wetlands and other sensitive habitats associated with removal activities.

Alternative 3, Configuration D will be environmentally superior to Alternative 6, No Project Alternative, as the wetlands in the reservoir will likely degrade under Alternative 6, No Project Alternative due to continuous sediment deposition.

**BIOLOGY-4** *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

#### *Sediment Removal/Reservoir Management*

The Proposed Project area is predominantly open for wildlife movement and habitat connectivity. Sediment removal will not be continuous, as excavation is expected to occur only in the drier months (April to December, excluding holidays). In addition, sediment removal activities would not completely block the Proposed Project site from surrounding habitat, would occur only during the day, and would not interfere with nighttime wildlife activity. Although some wildlife may be temporarily displaced during construction, wildlife would not be physically prevented from moving around and into the basin area. Sediment removal and reservoir management activities associated with Alternative 3, Configuration D ~~will~~ would remove vegetation used for cover, foraging, and nursery sites and interfere temporarily with the movement of native resident or migratory wildlife species, resulting in a potentially significant impact. After the sediment removal phase is completed and after the annual reservoir management activities are completed, equipment will no longer be operating and wildlife would be able to travel unimpeded through the Proposed Project site. With Alternative 3, Configuration D, the LACFCD would restore and enhance riparian habitats (Riparian Woodland and Mule Fat Thickets), Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub in the areas located outside of the boundary of the Reservoir Management Area and potentially at offsite areas to create additional cover, foraging, and nursery sites for wildlife as they move through during migration or as they travel to and from parts of their territories. Reduction in sensitive habitat would interfere with use of the habitat for wildlife nursery sites, resulting in a potentially significant impact. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of riparian and other sensitive habitats and thus provide additional cover and foraging opportunities, migratory habitat, and nursery sites for wildlife. The LACFCD will implement the Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to the movement of native resident or migratory fish or wildlife species, with established native resident or migratory wildlife corridors, or with the use of native wildlife nursery sites at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, riparian and other sensitive habitats that support wildlife movement, wildlife migration, and wildlife nursery sites can be successfully restored and

enhanced. Successful restoration and enhancement of the habitats that support wildlife movement, wildlife migration, and wildlife nursery sites would achieve not less than a 1:1 replacement, or no net loss, of wildlife habitat. Therefore, implementation of To minimize impacts to less than significant, Mitigation Measures MM BIO-1 through MM BIO-8 has been provided would reduce impacts to habitats supporting wildlife movement, wildlife migration, and wildlife nursery sites to a level below significance. This impact will be reduced in comparison to the Proposed Project due to the reduction in area disturbed during sediment removal and both reservoir management options.

#### *Mitigation Measures*

See Mitigation Measures MM BIO-1 through MM BIO-8.

#### *Residual Impacts After Mitigation*

As noted in MM BIO-8, restoration and/or enhancement of sensitive habitats will take place on the Proposed Project site. With implementation of these mitigation measures, impacts to use of the habitat for wildlife nursery sites willImpacts to movement of native resident and migratory wildlife species, wildlife corridors, and use of the habitat for wildlife nursery sites resulting from the Alternative 3, Configuration D would be reduced to a level below significance with implementation of Mitigation Measures MM BIO-1 through MM BIO-8 because LACFCD would avoid working during nighttime hours, would provide protection of nesting sites during construction, would restore and enhance riparian habitat, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub, would monitor the mitigation sites until they are successful, and would provide long-term management and protection of the mitigation sites. The result would be a no net loss of riparian habitat, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub that can be used for wildlife movement, wildlife migration, and wildlife nursery sites. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

#### *Comparison to Proposed Project and Other Alternatives*

Alternative 3, Configuration D is considered environmentally superior to the Proposed Project with respect to impacts to wildlife movement and habitat connectivity due to the reduction in sediment

removal and reservoir management areas and associated activities and increased opportunities for restoration and/or enhancement.

Due to the reduction in sediment removal and reservoir management areas and associated activities and increased opportunities for restoration and/or enhancement, Alternative 3, Configuration D will also be environmentally superior to Alternative 1, Configuration B; Alternative 2, Configuration C; and Alternative 5, Haul Route Alternative. Alternative 3, Configuration D will also potentially be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment deposits to develop along the route to the ocean. Sediment deposition and associated removal activities would impact downstream wetlands and other sensitive habitats, would result in interference with the movement of native resident or migratory wildlife species, and would interfere with use of the habitat for wildlife nursery sites due to potential reduction in sensitive habitat.

Alternative 3, Configuration D will be environmentally superior to Alternative 6, No Project Alternative, as the wetlands in the reservoir will likely degrade under Alternative 6, No Project Alternative due to continuous sediment deposition.

**BIOLOGY-5** *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

#### *Sediment Removal/Reservoir Management*

Implementation of Alternative 3, Configuration D will result in the removal of native trees from the Proposed Project site. This impact will be reduced under Alternative 3, Configuration D, as less vegetation and fewer trees will be removed in comparison to the Proposed Project. LACFCD would identify onsite tree replacement areas that are of the same size as the acreage occupied by the canopies of the affected trees. The number of replacement trees installed by LACFCD would be greater than the number of trees to be removed should the replacement tree be smaller and younger than the tree to be removed. LACFCD would monitor the survival of the trees for five years and replace those that do not survive during the monitoring period, ensuring that a 1:1 ratio of replacement by acreage is met. Implementation of Mitigation Measure MM BIO-7 will reduce impacts to city-protected trees to a level below significance- because more trees would be planted than would be lost from implementation of Alternative 3, Configuration D. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-7 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

#### *Mitigation Measures*

See Mitigation Measure MM BIO-7.

#### *Residual Impacts After Mitigation*

Alternative 3, Configuration D will result in a less than significant impact to city-protected trees. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program

#### *Comparison to Proposed Project and Other Alternatives*

Alternative 3, Configuration D is considered environmentally superior to the Proposed Project with respect to impacts to loss of native trees due to the reduction in potentially impacted trees.

Alternative 3, Configuration D will also be environmentally superior to Alternative 1, Configuration B; Alternative 2, Configuration C; Alternative 4, Sluicing; and Alternative 5, Haul Route Alternative. Alternative 3, Configuration D will be environmentally superior to Alternative 6, No Project Alternative

as trees in the reservoir will likely be lost under Alternative 6, No Project Alternative due to continuous sediment deposition.



**Section 4.8.3 ALTERNATIVE 5,  
CONFIGURATION A, HAUL ROUTE ALTERNATIVE –  
Impact Analysis and Comparison to Proposed Project**

**Page 553**

### *Mitigation Measures*

**MM AQ-1:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use only sediment removal dump trucks that meet EPA's emission standards for Model Year ~~2007~~2010 or later.

**MM AQ-2:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment.

### *Residual Impacts After Mitigation*

Implementation of these mitigations would reduce the Alternative 5, Haul Route Alternative's combined NO<sub>x</sub> emissions during the sediment removal phase to a level of less than significant. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

Reservoir management activities will not violate an air quality standard or contribute substantially to an existing or projected air quality violation; therefore, the Alternative 5, Haul Route Alternative during reservoir management will be consistent with the first indicator. No significant impact would occur.

### *Comparison to Proposed Project and Other Alternatives*

Alternative 5, Haul Route Alternative is considered neither environmentally superior nor inferior to the Proposed Project with respect to impacts to air quality plans due to the similarities in sediment removal area and reservoir management Option 1 area and associated activities.

Alternative 5, Haul Route Alternative will potentially be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment deposits to develop along the route to the ocean. This would result in need for sediment removal from the Arroyo Seco Channel, the Los Angeles River, or the Port of Long Beach and impacts to air quality associated with removal activities.

Alternative 5, Haul Route Alternative will be environmentally inferior to all of the other alternatives due to a greater amount of sediment removal and reservoir management activities.

**AIR QUALITY-2** *Violate an air quality standard or contribute substantially to an existing or project air quality violation.*

As with the Proposed Project, under Alternative 5, Haul Route Alternative emissions of NO<sub>x</sub> exceed the Daily Regional Threshold during sediment removal, resulting in a potentially significant impact. Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of Alternative 5, Haul Route Alternative's combined NO<sub>x</sub> emissions during sediment removal to a level of less than significant. This impact will be similar in comparison to the Proposed Project due to the identical excavation area and associated sediment removal activities.

As with the Proposed Project, reservoir management for Alternative 5, Haul Route Alternative will not exceed any standard and will result in less than significant impacts.

**Section 4.8.3 ALTERNATIVE 5,  
CONFIGURATION A, HAUL ROUTE ALTERNATIVE –  
Impact Analysis and Comparison to Proposed Project  
Pages 561 – 564**

Alternative 5, Haul Route Alternative will potentially be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment deposits to develop along the route to the ocean. This would result in need for sediment removal from the Arroyo Seco Channel, the Los Angeles River, or the Port of Long Beach and impacts to biological resources associated with removal activities.

Alternative 5, Haul Route Alternative will be environmentally inferior to all the other alternatives.

Alternative 5, Haul Route Alternative will be environmentally inferior to Alternative 6, No Project Alternative as habitat in the reservoir will likely degrade under Alternative 6, No Project Alternative due to continuous sediment deposition and degradation that will increase over time.

**BIOLOGY-2** *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service.*

#### *Sediment Removal/Reservoir Management*

Alternative 5, Haul Route Alternative will impact the same acreage of Riversidean Alluvial Fan Sage Scrub as the Proposed Project. Impacts to Riversidean Alluvial Fan Sage Scrub will result in a potentially significant impact requiring mitigation. To minimize impacts due to loss of Riversidean Alluvial Fan Sage Scrub, Mitigation Measure MM BIO-6 has been provided. With implementation of this mitigation measure, impacts to Riversidean Alluvial Fan Sage Scrub will be reduced to a level below significance.

Alternative 5, Haul Route Alternative will impact the same acreage of Coastal Sage Scrub as the Proposed Project. Impacts to Coastal Sage Scrub will result in a potentially significant impact requiring mitigation. To minimize impacts due to loss of Coastal Sage Scrub, Mitigation Measure MM BIO-8 has been provided.

This Alternative will impact the same amount of Riparian Woodland and Mule Fat Thickets as the Proposed Project. Riparian Woodland and Mule Fat Thickets are rare plant communities that provide nesting habitat for riparian species. Impacts to these habitats will result in a potentially significant impact. To minimize impacts due to the loss of Riparian Woodland and Mule Fat Thickets, Mitigation Measures MM BIO-7 and MM BIO-8 have been provided. With implementation of these mitigation measures, impacts to Riparian Woodland and Mule Fat Thickets will be reduced to a level below significance.

Alternative 5, Haul Route Alternative will impact the same amount of habitat within CDFW jurisdiction as the Proposed Project. To compensate for the impacts to habitats within CDFW jurisdiction found within the boundaries of the Alternative 5, Haul Route Alternative, the LACFCD would restore and enhance riparian habitats and other sensitive natural communities within onsite or offsite CDFW jurisdictional areas to achieve not less than a 1:1 replacement, or no net loss, of these habitats within CDFW jurisdictional areas (MM BIO-8).

Alternative 5, Haul Route Alternative will impact the same acreage of riparian or sensitive habitat as the Proposed Project. To minimize impacts, Mitigation Measures MM BIO-6 through MM BIO-8 have been provided. With implementation of these mitigation measures, impacts will be reduced to a level below significance. As stated above in the discussion of impacts to Riversidean Alluvial Fan Sage Scrub, Coastal Sage Scrub, and riparian habitats from the Proposed Project, the LACFCD will implement the measures

necessary to achieve successful restoration and enhancement of these plant communities in areas under the jurisdiction of CDFW. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of sensitive habitats, including riparian habitats, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub. The LACFCD will implement the Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to the riparian habitats and sensitive plant communities within CDFW jurisdiction at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, riparian habitats, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub within areas under the jurisdiction of CDFW can be successfully restored and enhanced. Successful restoration and enhancement of riparian habitats, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub within areas that fall under CDFW jurisdiction would achieve not less than a 1:1 replacement, or no net loss, of these plant communities within CDFW jurisdiction, and therefore implementation of Mitigation Measures MM BIO-6 through MM BIO-8 would reduce impacts to riparian habitats, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub within CDFW jurisdiction to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measures BIO-6, MM BIO-7, and MM BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

#### *Mitigation Measures*

**MM BIO – 6:** Riversidean Alluvial Fan Sage Scrub habitat shall be restored and/or enhanced at a 1:1 ratio by acreage. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of this sensitive habitat. Measures to achieve not less than a 1:1 replacement, or no net loss, of Riversidean Alluvial Fan Sage Scrub shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreage of Riversidean Alluvial Fan Sage Scrub.
- Identify and map the selected mitigation Areas where Riversidean Alluvial Fan Sage Scrub will be enhanced or restored shall be mapped using aerial photographs. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.
- Select offsite reference sites where Riversidean Alluvial Fan Sage Scrub is the established plant community. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, and native plant species richness (number of different plant species).
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant (if applicable) and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring methodologies.

- Selection criteria of reference sites,
- Performance standards of the mitigation sites,
- Monitoring reports and annual reports schedule,
- Mitigation long-term management plan, and
- Funding description for implementation and long-term management.
- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites and to show that not less than a 1:1 replacement of sensitive habitats has been achieved.
- Quantitatively monitor the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of Riversidean Alluvial Fan Sage Scrub has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species for plant species which are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.

**MM BIO – 7:** Within 90 days prior to ground-disturbing activities, a qualified biologist shall conduct a tree survey within the project footprint to identify native city-protected trees that would will be removed or potentially affected by the Proposed Project, and native city-protected trees that can be avoided, and native city-protected trees that will require root zone protection. LACFCD would will replace native city-protected trees that cannot be avoided. The replacement is expected to be at a up to 1:1 ratio by canopy acreage. The biological monitor shall implement measures to protect the root zone of oak trees that may be impacted immediately adjacent to the project site and along access roads. The acreage occupied by the canopies of the native city-protected trees to be removed will determine the appropriate level of tree replacement. LACFCD shall identify tree replacement areas that are no less than the acreage of the native city-protected tree canopies to be removed. Priority for tree replacement locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed. The number of replacement trees installed by LACFCD will be greater than the number of trees to be removed should the replacement tree be smaller and younger than the tree to be removed. LACFCD shall monitor the survival of the replacement trees for 5 years and replace those that do not survive

within the monitoring period, ensuring that not less than 1:1 ratio of replacement, or no net loss, has been achieved.

**MM BIO – 8:** A combination of onsite and offsite habitat restoration, enhancement, and exotic plant removal shall be implemented by LACFCD at a 1:1 ratio for impacted riparian habitat, sensitive natural communities, ~~habitat~~ and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic plant species removal. Non-native, weedy habitats within the basin shall be utilized whenever possible as mitigation sites. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters. Measures to achieve not less than a 1:1 replacement, or no net loss, of riparian habitat, sensitive natural communities, and jurisdictional waters shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub), and jurisdictional waters (federally protected wetlands).
- Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.
- Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring methodologies,
  - Selection criteria of reference sites,
  - Performance standards of the mitigation sites,
  - Monitoring reports and annual reports schedule,
  - Mitigation long-term management plan, and
  - Funding description for implementation and long-term management.
- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Quantitatively This mitigation measure shall be monitored for success for five years following implementation the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.



- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species for plant species which are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.
- Submit a A-report of the monitoring results shall be submitted annually, during the five years following implementation of the restoration and enhancement activities at the mitigation sites, to resource agencies as required by the Section 401 Certification, Section 404 permit, and a Streambed Alteration Agreement until the mitigation sites have met the performance standards.

### *Residual Impacts after Mitigation*

Impacts to riparian habitat or other sensitive natural communities identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service resulting from the sediment removal and reservoir maintenance, Alternative 5, Haul Road Alternative would be reduced to a level below significance ~~W~~with implementation of Mitigation Measures MM BIO-6 through MM BIO-8, Alternative 4, Sluicing under sediment removal and reservoir maintenance will result in a less than significant impact on riparian habitat and other sensitive natural communities because LACFCD would successfully restore and enhance riparian habitats, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub in areas that would fall under the jurisdiction of the CDFW, would monitor the mitigation sites until they are successful, and would provide long-term management and protection of the mitigation sites. The result would achieve not less than a 1:1 replacement, or no net loss, of these vegetation communities within CDFW jurisdictional areas. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

### *Comparison to Proposed Project and Other Alternatives*

Alternative 5, Haul Route Alternative is considered neither environmentally superior nor inferior to the Proposed Project with respect to impacts to riparian habitat and other sensitive natural communities due to the similarities in sediment removal area and reservoir management Option 1 area.

Alternative 5, Haul Route Alternative will potentially be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment

deposits to develop along the route to the ocean. This would result in need for sediment removal from the Arroyo Seco Channel, the Los Angeles River, or the Port of Long Beach and impacts to biological resources associated with removal activities.

Alternative 5, Haul Route Alternative will be environmentally inferior to Alternative 1, Configuration B; Alternative 2, Configuration C; and Alternative 3, Configuration D.

Alternative 5, Haul Route Alternative will be environmentally superior to Alternative 6, No Project Alternative as habitat in the reservoir will likely degrade under Alternative 6, No Project Alternative due to continuous sediment deposition and degradation that will increase over time.

**BIOLOGY-3** *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.*

#### *Sediment Removal/Reservoir Management*

Alternative 5, Haul Route Alternative will impact the same acreage of federally protected wetlands water features as the Proposed Project. As stated for the Proposed Project, the LACFCD will implement successful establishment, reestablishment, rehabilitation, and enhancement of federally protected wetlands to compensate for impacts associated with Alternative 5, Haul Road Alternative. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Mitigation and Monitoring Plan (HMMP) that will outline the means and methods of successful establishment, reestablishment, rehabilitation, and enhancement of federally protected wetlands. The LACFCD will implement the HMMP and will monitor and apply adaptive management, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to federally-protected wetlands at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented by other agencies, federally protected wetlands can be successfully established, reestablished, rehabilitated, and enhanced. Successful establishment, reestablishment, rehabilitation, and enhancement of federally-protected wetlands would achieve not less than 1:1 replacement, or no net loss, of federally protected wetlands. Therefore, implementation of ~~To minimize impacts,~~ Mitigation Measure MM BIO-8 ~~has been provided would reduce impacts to federally protected wetlands. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.~~

#### *Mitigation Measures*

See Mitigation Measure MM BIO-8 above.

### *Residual Impacts After Mitigation*

As noted in MM BIO-8, wetlands and drainages under the jurisdiction of CDFW, USACE, and RWQCB will be restored and/or enhanced in onsite and potentially offsite areas on the Proposed Project site. With implementation of these mitigation measures, impacts to federally protected wetlands resulting from the Alternative 5, Haul Road Alternative will would be reduced to a level below significance with implementation of Mitigation Measure MM BIO-8 because LACFCD would successfully establish, reestablish, rehabilitate, and enhance federally protected wetlands to achieve not less than a 1:1 replacement, or no net loss, of federally protected wetlands. In addition, LACFCD would quantitatively monitor the mitigation sites and apply adaptive management measures, as applicable, until the established performance standards are met. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to federally protected wetlands at alternative sites and will monitor those sites until the established performance standards are achieved. LACFCD would also provide long-term management and protection of the mitigation sites. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

### *Comparison to Proposed Project and Other Alternatives*

Alternative 5, Haul Route Alternative is considered neither environmentally superior nor inferior to the Proposed Project with respect to impacts on federally protected wetlands due to the similar sediment removal area and reservoir management Option 1 area.

Alternative 5, Haul Route Alternative will potentially be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment deposits to develop along the route to the ocean. This would result in need for sediment removal from the Arroyo Seco Channel, the Los Angeles River, or the Port of Long Beach and impacts to biological resources associated with removal activities.

Due to the larger sediment removal and reservoir management areas, Alternative 5, Haul Route Alternative will be environmentally inferior to Alternative 1, Configuration B; Alternative 2, Configuration C; and Alternative 3, Configuration D.

Alternative 5, Haul Route Alternative will be environmentally superior to Alternative 6, No Project Alternative, as the wetlands in the reservoir will likely degrade under Alternative 6, No Project Alternative due to continuous sediment deposition.

**BIOLOGY-4** *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.*

### *Sediment Removal/Reservoir Management*

The Proposed Project area is predominantly open for wildlife movement and habitat connectivity. Sediment removal will not be continuous, as excavation is expected to occur only in the drier months (April to December, excluding holidays). In addition, sediment removal activities would not completely

block the Proposed Project site from surrounding habitat, would occur only during the day, and would not interfere with nighttime wildlife activity. Although some wildlife may be temporarily displaced during construction, wildlife would not be physically prevented from moving around and into the basin area. Sediment removal and reservoir management activities associated with Alternative 5, Haul Route Alternative ~~will~~ would remove vegetation used for cover, foraging, and nursery sites and interfere temporarily with the movement of native resident or migratory wildlife species, resulting in a potentially significant impact. Reduction in sensitive habitat would interfere with use of the habitat for wildlife nursery sites, resulting in a potentially significant impact. After the sediment removal phase is completed and after the annual reservoir management activities are completed, equipment will no longer be operating and wildlife would be able to travel unimpeded through the Proposed Project site. With Alternative 3, Configuration D, the LACFCD would restore and enhance riparian habitats (Riparian Woodland and Mule Fat Thickets), Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub in the areas located outside of the boundary of the Reservoir Management Area and potentially at offsite areas to create additional cover, foraging, and nursery sites for wildlife as they move through during migration or as they travel to and from parts of their territories. Reduction in sensitive habitat would interfere with use of the habitat for wildlife nursery sites, resulting in a potentially significant impact. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of riparian and other sensitive habitats and thus provide additional cover and foraging opportunities, migratory habitat, and nursery sites for wildlife. The LACFCD will implement the Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to the movement of native resident or migratory fish or wildlife species, with established native resident or migratory wildlife corridors, or with the use of native wildlife nursery sites at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, riparian and other sensitive habitats that support wildlife movement, wildlife migration, and wildlife nursery sites can be successfully restored and enhanced. Successful restoration and enhancement of the habitats that support wildlife movement, wildlife migration, and wildlife nursery sites would achieve not less than a 1:1 replacement, or no net loss, of wildlife habitat. Therefore, implementation of ~~To minimize impacts to less than significant, Mitigation Measures MM BIO-1 through MM BIO-8 has been provided~~ would reduce impacts to habitats supporting wildlife movement, wildlife migration, and wildlife nursery sites to a level below significance. This impact will be similar in comparison to the Proposed Project due to the similarities in area disturbed during sediment removal and reservoir management Option 1.

### *Mitigation Measures*

See Mitigation Measures MM BIO-1 through MM BIO-8.

### *Residual Impacts After Mitigation*

As noted in MM BIO-8, restoration and/or enhancement of sensitive habitats will take place on the Proposed Project site. With implementation of these mitigation measures, impacts to use of the habitat for wildlife nursery sites willImpacts to movement of native resident and migratory wildlife species, wildlife corridors, and use of the habitat for wildlife nursery sites resulting from the Alternative 5, Haul Road Alternative would be reduced to a level below significance with implementation of Mitigation Measures MM BIO-1 through MM BIO-8 because LACFCD would avoid working during nighttime hours, would provide protection of nesting sites during construction, would restore and enhance riparian habitat, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub, would monitor the mitigation sites until they are successful, and would provide long-term management and protection of the mitigation sites. The result would be a no net loss of riparian habitat, Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub that can be used for wildlife movement, wildlife migration, and wildlife nursery sites. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

### *Comparison to Proposed Project and Other Alternatives*

Alternative 5, Haul Route Alternative is considered neither environmentally superior nor inferior to the Proposed Project with respect to impacts to wildlife movement and habitat connectivity due to the similarities in sediment removal area and reservoir management Option 1 area.

Alternative 5, Haul Route Alternative will be environmentally superior to Alternative 4, Sluicing if proper sediment transport does not occur under Alternative 4, Sluicing, causing sediment deposits to develop along the route to the ocean. This would result in need for sediment removal from the Arroyo Seco Channel, the Los Angeles River, or the Port of Long Beach and impacts to biological resources associated with removal activities.

Due to the larger sediment removal and reservoir management areas, Alternative 5, Haul Route Alternative will be environmentally inferior to all the other alternatives.

Alternative 5, Haul Route Alternative will be environmentally superior to Alternative 6, No Project Alternative as the wetlands in the reservoir will likely degrade under Alternative 6, No Project Alternative due to continuous sediment deposition.

**BIOLOGY-5** *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.*

### *Sediment Removal/Reservoir Management*

Implementation of Alternative 5, Haul Route Alternative will result in the removal of native city-protected trees from the Proposed Project site. This impact will be the same as with the Proposed Project, as the same amount of vegetation and trees will be removed. LACFCD would identify onsite tree replacement areas that are of the same size as the acreage occupied by the canopies of the affected trees. The number of replacement trees installed by LACFCD would be greater than the number of trees to be removed should the replacement tree be smaller and younger than the tree to be removed.

LACFCD would monitor the survival of the trees for five years and replace those that do not survive during the monitoring period, ensuring that a 1:1 ratio of replacement by acreage is met. Implementation of Mitigation Measure MM BIO-7 will reduce impacts to city-protected trees to a level below significance- because more trees would be planted than would be lost from implementation of Alternative 5, Haul Road Alternative. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-7 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

*Mitigation Measures*

See Mitigation Measure MM BIO-7.

*Residual Impacts After Mitigation*

Alternative 5, Haul Route Alternative will result in a less than significant impact to city-protected trees. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program.

## **Section 6.0 REFERENCES**

**Pages 653 – 656**

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**Section 8.0 CLARIFICATIONS AND MODIFICATIONS –  
Executive Summary**

**Page 673**

ES-12 In the 3<sup>rd</sup> full row of Table ES-1, the following clarifications have been made:

Air Quality		
Air Quality-1: Conflict with the implementation of SCAQMD air quality management plan due to sediment removal emissions of NO <sub>x</sub> exceeding the Daily Regional Threshold will result in a significant impact.	<p><b>MM AQ-1:</b> LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use <i>only</i> sediment removal dump trucks that meet the EPA's emission standards for Model Year <del>2010</del> <b>2007 or later</b> as reasonably feasible.</p> <p><b>MM AQ-2:</b> LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment.</p>	<del>Less than Significant Full implementation of these mitigations could be unachievable. Therefore, impact remains significant and unavoidable.</del>
Air Quality-2 and Air Quality-3: Sediment removal emissions of NO <sub>x</sub> will exceed the SCAQMD Daily Regional Threshold, resulting in a significant impact to an air quality standard.	See MM AQ-1 and MM AQ-2.	<del>Less than Significant Full implementation of these mitigations could be unachievable. Therefore, impact remains significant and unavoidable.</del>
Air Quality 6: Sediment removal emissions of NO <sub>x</sub> will exceed the SCAQMD Daily Regional Threshold, resulting in a cumulatively significant impact.	See MM AQ-1 and MM AQ-2.	<del>Less than Significant Full implementation of these mitigations could be unachievable. Therefore, impact remains significant and unavoidable.</del>

ES-12 In the 6<sup>th</sup> full row of Table ES-1 under Biological Resources, the following clarifications have been made:

Biological Resources		
Biology-1: Removal of habitat during sediment removal will result in a potentially significant impact to five special status wildlife species (least Bell's vireo, yellow warbler, southwestern pond turtle, coast range newt, and two-striped garter snake) and nesting native birds and roosting bats.	<p><b>MM BIO – 1:</b> A qualified biological monitor shall be present during initial ground- or vegetation-disturbing project-related activities <i>to provide measures and monitor for wildlife in harm's way. This includes initial ground- or vegetation-disturbing project-related activities at the annual start of each year of sediment removal or maintenance activities.</i> Following initial project-related activities, a qualified monitoring biologist shall be present as necessary to maintain the implemented protection measures and monitor for additional species in harm's way. <i>These protection measures shall include, as appropriate: redirecting wildlife, identifying areas that may require exclusionary devices (e.g., fencing), or capturing and relocating wildlife</i></p>	



**Section 8.0 CLARIFICATIONS AND MODIFICATIONS –  
Executive Summary**

**Page 676**

	<p style="text-align: center;"><b>of roosting bats</b></p> <ul style="list-style-type: none"> <li>▪ <b><i>The qualified biologist shall document all bat survey, monitoring, and protection measure activities and prepare a summary report for LACFCD.</i></b></li> </ul>	
<p>Biology-2: A significant impact will occur to riparian habitats and sensitive habitats.</p>	<p><b>MM BIO – 6:</b> Riversidean Alluvial Fan Sage Scrub habitat shall be restored and/or enhanced at a 1:1 ratio by acreage. <u>LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of this sensitive habitat. Measures to achieve not less than a 1:1 replacement, or no net loss, of Riversidean Alluvial Fan Sage Scrub shall include but not be limited to the following:</u></p> <ul style="list-style-type: none"> <li>• <u>Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreage of Riversidean Alluvial Fan Sage Scrub.</u></li> <li>• <u>Identify and map the selected mitigation Areas where Riversidean Alluvial Fan Sage Scrub will be enhanced or restored shall be mapped using aerial photographs. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.</u></li> <li>• <u>Select offsite reference sites where Riversidean Alluvial Fan Sage Scrub is the established plant community. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, and native plant species richness (number of different plant species).</u></li> <li>• <u>Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:</u> <ul style="list-style-type: none"> <li>○ <u>Site-specific container plant (if applicable) and seed palettes,</u></li> <li>○ <u>Irrigation plan,</u></li> </ul> </li> </ul>	<p>Less than significant</p>

- Nonnative and invasive plant species removal,
- Maintenance and monitoring schedule,
- Qualitative and quantitative monitoring methodologies,
- Selection criteria of reference sites,
- Performance standards of the mitigation sites,
- Monitoring reports and annual reports schedule,
- Mitigation long-term management plan, and
- Funding description for implementation and long-term management.
- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites and to show that not less than a 1:1 replacement of sensitive habitats has been achieved.
- Quantitatively monitor the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of Riversidean Alluvial Fan Sage Scrub has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species for plant species which are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management

- measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.

**MM BIO – 7:** Within 90 days prior to ground-disturbing activities, a qualified biologist shall conduct a tree survey within the project footprint to identify native city-protected trees that would will be removed or potentially affected by the Proposed Project, and native city-protected trees that can be avoided, and native city-protected trees that will require root zone protection. LACFCD would will replace native city-protected trees that cannot be avoided. The replacement is expected to be at a up to 1:1 ratio by canopy acreage. The biological monitor shall implement measures to protect the root zone of oak trees that may be impacted immediately adjacent to the project site and along access roads. The acreage occupied by the canopies of the native city-protected trees to be removed will determine the appropriate level of tree replacement. LACFCD shall identify tree replacement areas that are no less than the acreage of the native city-protected tree canopies to be removed. Priority for tree replacement locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed. The number of replacement trees installed by LACFCD will be greater than the number of trees to be removed should the replacement tree be smaller and younger than the tree to be removed. LACFCD shall monitor the survival of the replacement trees for 5 years and replace those that do not survive within the monitoring period, ensuring that not less than 1:1 ratio of replacement, or no net loss, has been achieved.

**MM BIO – 8:** A combination of onsite and offsite habitat restoration, enhancement, and exotic plant removal shall be implemented by LACFCD at a 1:1 ratio for impacted riparian habitat, sensitive natural communities, habitat and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic plant species removal. **Non-native, weedy** ~~Ruderal~~ habitats within the basin shall be utilized whenever possible as mitigation sites. LACFCD, with the help of professional

restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters. Measures to achieve not less than a 1:1 replacement, or no net loss, of riparian habitat, sensitive natural communities, and jurisdictional waters shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub), and jurisdictional waters (federally protected wetlands).
- Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.
- Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring

methodologies,

- Selection criteria of reference sites,
- Performance standards of the mitigation sites,
- Monitoring reports and annual reports schedule,
- Mitigation long-term management plan, and
- Funding description for implementation and long-term management.

- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Quantitatively This mitigation measure shall be monitored for success for five years following implementation the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species for plant species which are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.

Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD

shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.

- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.

Submit a A-report of the monitoring results shall be submitted annually, during the five years following implementation of the restoration and enhancement activities at the mitigation sites, to resource agencies as required by the Section 401 Certification, Section 404 permit, and a Streambed Alteration Agreement until the mitigation sites have met the performance standards.

**Section 8.0 CLARIFICATIONS AND MODIFICATIONS**

**Pages 690 – 694**



For reservoir management under Option 2, at the end of the sediment removal phase, implementation of Mitigation Measures MM BIO-6, MM BIO-7, and MM BIO-8 would involve habitat restoration and enhancement and tree replacement in the remaining approximately ~~28.7286~~45 acres on the northern half of the reservoir.

**Section 3.5 Air Quality**

**Page Clarification/Revision**

76 In the 3<sup>rd</sup> paragraph under Sensitive Receptors, the following detail has been added:

The Proposed Project is located adjacent to residential areas, and 10 schools are located within one-half mile: i.e., Crestview Preparatory, Franklin Elementary, Hillside School and Learning Center, Jackson Elementary, La Cañada High School (*includes La Cañada Junior High School*), *Child Education Center*, Nanny's Nursery, Odyssey Charter, and Woodbury Preschool Village.

85 In the 2<sup>nd</sup> paragraph of 3.5.6 Impacts and Mitigation, the following clarifications have been made:

Use of sediment removal dump trucks that meet EPA's emission standards for Model Year 2010 or later ~~2007~~ and use of off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 interim equipment, would result in a reduction of NO<sub>x</sub> emissions to less than the SCAQMD Regional Threshold for NO<sub>x</sub>. As EPA's NO<sub>x</sub> standard was phased-in for diesel engines between 2007 and 2010, use of sediment haul trucks that are Model Year 2010 or later will assure 100 percent compliance with EPA's NO<sub>x</sub> standard. Every effort will be made to strive for the newest vehicles/equipment reasonably available. Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of NO<sub>x</sub> emissions to less than the SCAQMD Regional Threshold for NO<sub>x</sub>. **Therefore, impacts during sediment removal will be less than significant.**; however, the actual vehicles/equipment used may not reach the levels required to reduce the NO<sub>x</sub> emissions to a level of less than significant for the sediment removal phase. ~~Therefore, the Proposed Project during sediment removal will not meet the first indicator.~~

85 In the 6<sup>th</sup> paragraph of 3.5.6 Impacts and Mitigation, the following clarifications have been made:

**MM AQ-1:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use **only as many** ~~as many~~ sediment removal dump trucks that meet EPA's emission standards for Model Year 2010 ~~2007~~ **or later as reasonably feasible.**

86 In the 8<sup>th</sup> paragraph of 3.5.6 Impacts and Mitigation, the following clarifications have been made:

Implementation of these mitigations would reduce the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal phase; ~~however while every reasonable effort will be made to strive for the newest vehicles/equipment, the actual~~

vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. ; therefore, this impact remains significant and unavoidable.

87 In Table 3.5-6, the following edits have been made:

**Table 3.5-6: Unmitigated Sediment Removal Emissions**

Category	Maximum Daily Emissions (lbs/d)				
	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Off-Road	7.54	33.99	55.18	2.87	2.87
On-Road Trucks	7.15	34.87	314.93	5.33	4.91
<b>Onsite Idling</b>	<b>0.44</b>	<b>1.89</b>	<b>7.88</b>	<b>0.05</b>	<b>0.05</b>
Employees	0.07	2.44	0.24	0.00	0.00
Fugitive	0.00	0.00	0.00	27.30	4.44
<b>Project Maximum Daily</b>	<b>15.214.78</b>	<b>73.271.30</b>	<b>378.2370.30</b>	<b>13.70</b>	<b>8.70</b>
SCAQMD Daily Threshold	75.00	550.00	100.00	150.00	55.00
<b>Exceeds Threshold?</b>	No	No	<b>Yes</b>	No	No

88 In the 1<sup>st</sup> and 2<sup>nd</sup> paragraphs under Off-Road, the following revisions have been made:

Reduction of impacts from off-road equipment usage during the sediment removal can be accomplished by requiring the Proposed Project Contractor to use only EPA **Tier 3** ~~Tier 4 interim~~ equipment. **Tier 3** ~~Tier 4 interim~~ emissions standards are addressed in 40 Code of Federal Regulations (CFR), Part 1039 which addresses new compression-ignition non-road (i.e., CARB off-road equivalent) engines. Standards were phased in for various power categories with the latest being effective in 2011.

The emission factor used to estimate off-road equipment in this AQR was obtained from tables presented in CalEEMod's User Guidelines and represents the statewide average of equipment for each category. The factors for Fleet Year 2015 most closely compare to an average fleet of Tier 2 equivalent equipment. Applying the percentage reductions from Tier 2 to **Tier 3** ~~Tier 4 interim~~ to the unmitigated emissions represented above reduces the NO<sub>x</sub> emissions from the off-road component for the sediment removal phase of the Proposed Project (SCAQMD 2013).<sup>89</sup> In the 12<sup>th</sup> paragraph of AIR QUALITY-2, the following clarifications have been made:

As shown in Table 3.5-7 below, use of sediment removal dump trucks that meet EPA's emission standards for Model Year 2010 or later ~~2007~~ and use of off-road equipment that meets, at a minimum, EPA's emission standards for **Tier 3** ~~Tier 4 interim~~ equipment would result in a reduction of the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal to less than the SCAQMD Regional Threshold for NO<sub>x</sub>. ~~Every effort will be made to strive for the newest vehicles/equipment reasonably available.~~ Implementation of

Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of NO<sub>x</sub> emissions; ~~however, the actual vehicles/equipment used may not reach the levels required to~~ **and will** reduce the NO<sub>x</sub> emissions to a level of less than significant for the sediment removal phase.

89 In Table 3.5-7, the following edits have been made:

**Table 3.5-7: Sediment Removal Emissions with Model ~~2010~~ 2007 Sediment Removal Trucks and *Tier 3* ~~Tier 4~~ Interim Off-road Equipment**

Category	Maximum Daily Emissions (lbs/d)				
	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Off-Road	4.71 <del>20</del>	33.99	<del>22.05</del> <u>21.88</u>	<del>2.60</del> <u>2.22</u>	<del>2.15</del> <u>2.22</u>
On-Road Trucks	7.15	34.87	18.90	1.07	0.98
<b>Onsite Idling</b>	<b>0.44</b>	<b>1.89</b>	<b>2.48</b>	<b>0.01</b>	<b>0.01</b>
Employees	0.07	2.44	0.24	0.00	0.00
Fugitive	0.00	0.00	0.00	5.46	0.89
<b>Project Maximum Daily</b>	<del>12.41</del> <u>1.47</u>	<del>73.27</del> <u>1.32</u>	<del>81.74</del> <u>1.05</u>	<del>10.56</del> <u>0.80</u>	<del>5.22</del> <u>1.10</u>
SCAQMD Daily Threshold	75.00	550.00	100.00	150.00	55.00
<b>Exceeds Threshold?</b>	No	No	No	No	No

89 In the 1<sup>st</sup> paragraph under Reservoir Management, the following changes have been made:

Emissions will be related to the off-road equipment used for reservoir management under both options, including four front loaders with 2-cubic-yard buckets, one bulldozer, an excavator, a grader, water truck, and sorters/crushers. Removal of the sediment, vegetation, trees, and organic debris is expected to require an estimated **200 to a** maximum of ~~2-300~~ truck trips per day. It is estimated that during the first week approximately 25 percent of the debris will be green waste trucked to the Scholl Canyon Landfill, and the remaining 75 percent of trucking will be sediment distributed to the other sites. During reservoir management it is estimated that for the total trips, 2 percent will go to Scholl Canyon Landfill, 75 percent will go to the Irwindale sites, and 23 percent will go to the Sun Valley sites. **Reservoir management activities will use only disposal trucks that meet EPA's emission standards for Model Year 2010 ~~2007~~ or later and *Tier 3* or higher equipment.**

91 In Table 3.5-8, the following edits have been made:

**Table 3.5-8: Unmitigated Reservoir Management Activity\***

Category	Maximum Daily Emissions (lbs/d)				
	ROG	CO	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Off-Road	<del>2.863</del> 14	<del>17.291</del> 6.57	19.26	0.982	0.982
On-Road Trucks	2.8217	<del>17.471</del> 2.16	<del>40.567</del> 4.62	<del>1.701</del> 13	<del>1.561</del> 04
<b>Onsite Idling</b>	<b>0.20</b>	<b>0.89</b>	<b>1.17</b>	<b>0.00</b>	<b>0.00</b>
Employees	0.02	0.76	0.07	0.00	0.00
Fugitive	0.00	0.00	0.00	3.30	0.75
<b>Project Maximum Daily</b>	<b>5.905</b>	<b>36.40</b> 24	<b>61.194</b> 00	<b>10.55</b> 40	<b>3.32</b> 80
SCAQMD Daily Threshold	75.00	550.00	100.00	150.00	55.00
Exceeds Threshold?	No	No	No	No	No

\* Reservoir management activities will use only disposal trucks that meet EPA's emission standards for Model Year 2010 ~~2007~~ -or later and Tier 3 or higher equipment.

91 In the 20<sup>th</sup> paragraph of AIR QUALITY-2, the following clarifications have been made:

Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 would reduce the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal phase; however, while every reasonable effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. Therefore, this impact remains significant and unavoidable.

92 In the 5<sup>th</sup> paragraph of AIR QUALITY-3, the following clarifications have been made:

The analysis in Air Quality-2 demonstrated that during sediment removal, the significance threshold would not be exceeded for emissions of particulate matter and CO; and no significance threshold would be exceeded during reservoir management under either option. Nevertheless, while every effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce the NO<sub>x</sub> emissions to a level of less than significant. Therefore, this impact remains significant and unavoidable. **Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of NO<sub>x</sub> emissions and will reduce the NO<sub>x</sub> emissions to a level of less than significant for the sediment removal phase.**

92 In the 7<sup>th</sup> paragraph of AIR QUALITY-3, the following clarifications have been made:

Implementation of Mitigation Measures MM AQ-1 and MMAQ-2 would reduce the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal phase; ~~however, while every reasonable effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. Therefore, this impact remains significant and unavoidable.~~

96 In the 1<sup>st</sup> paragraph under AIR QUALITY-6, the following clarifications have been made:

The Proposed Project would generate air pollutant emissions from construction over a five-year period. Cumulative projects that could contribute to cumulative air quality impacts would be the cumulative projects that could be under construction during the same time period (Hahamongna Watershed Park MBMU Project, Metro Gold Line Foothill Extension, Arroyo Seco Canyon Project, and Devil's Gate Water Conservation Project). Each of the cumulative projects would have construction emissions contributing to existing air quality violations. All projects would be required to comply with the SCAQMD's air pollution control measures and rules. Implementation of these measures would reduce air emissions ~~As discussed above, the Proposed Project emissions of VOC, PM<sub>10</sub>, and PM<sub>2.5</sub> are not expected to result in a cumulatively considerable net increase of any criteria pollutants for which the project region is non-attainment with the exception of NO<sub>x</sub> emissions which may remain significant for sediment removal activity. While every effort will be made to strive for the newest vehicles/equipment, the actual Proposed Project vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. Therefore, the Proposed Project's contribution to cumulative impacts associated with NO<sub>x</sub> emissions remains significant and unavoidable.~~

96 In the 3<sup>rd</sup> paragraph of AIR QUALITY-6, the following clarifications have been made:

Implementation of these mitigations would reduce the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal phase; ~~however, while every reasonable effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. Therefore, this impact remains significant and unavoidable.~~

### Section 3.6 Biological Resources

#### Page Clarification/Revision

97 In the 1st paragraph under Vegetation, the following clarifications have been made:

At the time of the 2010 survey (Chambers Group 2010a), the Proposed Project site was primarily composed of riparian and upland communities (see Figure 3.6-1: Devil's Gate Vegetation Communities (2010)). The Proposed Project site was resurveyed in 2013

**Section 8.0 CLARIFICATIONS AND MODIFICATIONS**

**Page 706**

- **The qualified biologist shall document all bat survey, monitoring, and protection measure activities and prepare a summary report for LACFCD.**

133 In the 2<sup>nd</sup> paragraph under BIOLOGY-2, the following clarifications have been made:

The Proposed Project would impact approximately 51.4 acres of Riparian Woodland and ~~11.193~~ acres of ~~Mule Fat Scrub~~ **Mule Fat Thickets** within the Proposed Project site. Riparian Woodland and ~~Mule Fat Scrub~~ **Mule Fat Thickets** are rare plant communities and provide nesting habitat for riparian species; impacts to these habitats would result in a significant impact. To minimize impacts due to the loss of Riparian Woodland and **Mule Fat Thickets** ~~Mule Fat Scrub~~, Mitigation Measures MM BIO-7 and MM BIO-8 have been provided.

134 In Table 3.6-4, the following clarifications have been made:

TABLE 3.6-4: JURISDICTIONAL ACREAGE MATRIX

Authority	Jurisdictional Area (acre or sq. ft.)	Total Jurisdiction (acres)
USACE	Riparian Area outside Wetland Area*	54.33*
	Wetland Area	11.2
	Drainage Impacts	35.6
	Main channel	6.7
	Braided channel	28.9
		101.13*
		46.80
RWQCB	Riparian Area Outside Wetland Area*	2,366,614.8 (sq. ft.)*
	Mule Fat Thickets*	406,414.8 (sq. ft.)*
	Riparian Woodland*	1,960,200 (sq. ft.)*
	Wetland Area	487,872 (sq. ft.) (11.2 ac)
	Drainage Impacts	1,550,736 (sq. ft.) (35.6 ac)
	Main channel	291,852 (sq. ft.) (6.7 ac)
	Braided channel	1,258,884 (sq. ft.) (28.9 ac)
		4,405,222.8 (sq. ft.)*
		2,038,608 (sq. ft.)
		(46.80 ac)
CDFW	Riparian Area Outside Wetland Area	54.43
	Mule Fat Thickets	9.33
	Riparian Woodland	45.0
	Wetland Area	11.2
	Drainage Impacts	35.6
	Main channel	6.7
	Braided channel	28.9
		101.13

\*Riparian areas located outside of the OHWM are not considered jurisdictional by USACE or RWQCB (USACE 1987, USACE 2008, California Water Code 1996). The total impacts to USACE and RWQCB jurisdiction has been corrected.

**Section 8.0 CLARIFICATIONS AND MODIFICATIONS**

**Page 707**



135 In MM BIO-8, the following clarifications have been made:

**MM BIO – 8:** A combination of onsite and offsite habitat restoration, enhancement, and exotic plant removal shall be implemented by LACFCD at a 1:1 ratio for impacted riparian habitat, sensitive natural communities, ~~habitat~~ and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic plant species removal. ***Non-native, weedy ~~Ruderal~~*** habitats within the basin shall be utilized whenever possible as mitigation sites. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters. Measures to achieve not less than a 1:1 replacement, or no net loss, of riparian habitat, sensitive natural communities, and jurisdictional waters shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub), and jurisdictional waters (federally protected wetlands).
- Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.
- Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring methodologies,
  - Selection criteria of reference sites,
  - Performance standards of the mitigation sites,
  - Monitoring reports and annual reports schedule,
  - Mitigation long-term management plan, and
  - Funding description for implementation and long-term management.

- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Quantitatively This mitigation measure shall be monitored for success for five years following implementation the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species for plant species which are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.
- Submit a A-report of the monitoring results shall be submitted annually, during the five years following implementation of the restoration and enhancement activities at the mitigation sites, to resource agencies as required by the Section 401 Certification, Section 404 permit, and a Streambed Alteration Agreement until the mitigation sites have met the performance standards.

136

In the 1<sup>st</sup> paragraph under BIOLOGY-4, the following additions have been made:

The Proposed Project area is predominantly open for wildlife movement and habitat connectivity. Implementation of the Proposed Project would remove vegetation within the Proposed Project site that provides habitat where wildlife species may seek cover or foraging opportunities while moving through during migration or as they travel to or from different parts of their territories. Removal of the vegetation would also eliminate habitat that may be used by wildlife for nursery sites. The vegetation located outside of

the boundary of the Proposed Project would not be affected and would continue to provide cover and foraging opportunities and nursery sites for wildlife as they move through the area. **Sediment removal will would not be continuous, as excavation is expected to occur only in the drier months (April to December, excluding holidays). In addition, sediment removal activities would not completely block the Proposed Project site from surrounding habitat, and, because the activities would only occur only during the day, and they would not interfere with nighttime wildlife activity. Although some wildlife may be temporarily displaced from areas where equipment is operating during the construction associated with the initial sediment removal and during reservoir management, wildlife would not be physically prevented from moving around and into the basin area.** After the sediment removal phase is completed and after the annual reservoir management activities are completed, equipment will no longer be operating and wildlife would be able to travel unimpeded through the Proposed Project site. With the Proposed Project, Option 2, the LACFCD would restore native riparian habitat and Riversidean Alluvial Fan Sage Scrub in the 29-acre area located between the boundary of the Reservoir Management Area and the upstream boundary of the Proposed Project site (see the descriptions above in BIOLOGY-2). LACFCD would implement habitat restoration and habitat enhancement at onsite and offsite locations to create additional cover, foraging, and nursery sites for wildlife as they move through during migration or as they travel to and from parts of their territories. The priority for determining mitigation site locations for unavoidable impacts would be onsite (for the Proposed Project, Option 2 and Alternatives), offsite within the Arroyo Seco watershed, and offsite within the greater Los Angeles River watershed. Sediment removal and reservoir management activities would remove vegetation used for cover, foraging, and nursery sites and interfere temporarily with the movement of native resident or migratory wildlife species, resulting in a significant impact. ~~Reduction in sensitive habitat would interfere with use of the habitat for wildlife nursery sites, resulting in a significant impact.~~ **To minimize impacts to less than significant, Mitigation Measures MM BIO-1 through MM BIO-8 have been provided.**

**Section 3.7 Cultural Resources**

**Page Clarification/Revision**

143 In the 5<sup>th</sup> paragraph under City of Pasadena Comprehensive General Plan, the following revisions have been made:

Preservation of cultural resources and the City's historic character is a consistent theme throughout the Land Use ~~and Mobility~~ Element of the City of Pasadena Comprehensive General Plan. The values of the community are laid out in the General Plan's Seven Guiding Principles. Principle No. 2 emphasizes the community's fundamental commitment to preservation of its historic character:

The following policies of the Land Use ~~and Mobility~~ Element are related to the preservation of cultural resources:

**Section 8.0 CLARIFICATIONS AND MODIFICATIONS**

**Page 743**

resemble the mix of disturbed and vegetated areas found under existing conditions than with the Proposed Project.

- 433 In the 2<sup>nd</sup> paragraph under AIR QUALITY-1, the following clarifications have been made:  
As with the Proposed Project (see Section 3.5.6), Alternative 3, Configuration D will be consistent with the second through fourth criteria but will not be consistent with the first criterion. This is due to emissions of NO<sub>x</sub> exceeding the Daily Regional Threshold during sediment removal, resulting in a potentially significant impact. Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of Alternative 3, Configuration D's combined NO<sub>x</sub> emissions during sediment removal. ~~Implementation of these mitigation measures may not be feasible, however, while every reasonable effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. Therefore, Alternative 3, Configuration D could result in a significant impact.~~ **Therefore, impacts during sediment removal will be less than significant.** This impact will be reduced in comparison to the Proposed Project due to the reduction in excavation area and associated sediment removal activities.
- 433 In the 1<sup>st</sup> paragraph under Mitigation Measures, the following clarification has been made:  
**MM AQ-1:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use **only** sediment removal dump trucks that meet EPA's emission standards for Model Year ~~2007~~2010 **or later** ~~as reasonably feasible.~~
- 433 In the 1<sup>st</sup> paragraph under Residual Impacts After Mitigation, the following clarifications have been made:  
Implementation of these mitigations would reduce the combined NO<sub>x</sub> emissions of Alternative 3, Configuration D during the sediment removal phase. ~~While every effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program. Therefore, this impact remains potentially significant and unavoidable.~~
- 434 In the 1<sup>st</sup> paragraph under AIR QUALITY-2, the following clarifications have been made:  
As with the Proposed Project, under Alternative 3, Configuration D emissions of NO<sub>x</sub> exceed the Daily Regional Threshold during sediment removal, resulting in a potentially significant impact. Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of the combined NO<sub>x</sub> emissions of Alternative 3, Configuration D during sediment removal. Implementation of these mitigations would reduce the Proposed Project's combined NO<sub>x</sub> emissions during the sediment removal phase; ~~however, while every reasonable effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. Therefore, Alternative 3, Configuration D will result in a potentially significant impact.~~ This impact will be reduced in comparison to the Proposed Project due to the reduction in excavation area and associated sediment removal activities.

**Section 8.0 CLARIFICATIONS AND MODIFICATIONS**

**Pages 748 – 750**

447 In the 7<sup>th</sup> paragraph under Mitigation Measures, the following details have been added:

**MM BIO – 5:** Within 30 days prior to commencement of vegetation or structure removal activities, a preconstruction bat survey shall be conducted by a qualified biologist for the presence of any roosting bats. ***Acoustic recognition technology shall be used if feasible and appropriate.*** If either a bat maternity roost or hibernacula (structures used by bats for hibernation) ***are*** present, a qualified biologist will develop and implement appropriate protection measures for that maternity roost or hibernacula. These protection measures shall include, as appropriate, safely evicting non-breeding bat hibernacula, establishment of avoidance buffers, or replacement of roosts at a suitable location. ***These measures shall also include as appropriate:***

- ***To the extent feasible, trees that have been identified as roosting sites shall be removed or relocated between October 1 and February 28.***
- ***When trees must be removed during the maternity season (March 1 to September 30), a qualified bat specialist shall conduct a preconstruction survey to identify those trees proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats.***
- ***Trees identified as potentially supporting an active nursery roost shall be inspected by a qualified biologist no greater than 7 days prior to tree disturbance to determine presence or absence of roosting bats.***
- ***Trees determined to support active maternity roosts will be left in place until the end of the maternity season (September 30).***
- ***If bats are not detected in a tree, but the qualified biologist determines that roosting bats may still be present, trees shall be removed as follows:***
  - ***Pushing a tree down with heavy machinery instead of felling the tree with a chainsaw***
  - ***First pushing the tree lightly 2 to 3 times with a pause of 30 seconds between each nudge to allow bats to become active, then pushing the tree to the ground slowly***
  - ***Allowing the tree to remain in place for 24 to 48 hours until inspected by the qualified biologist for presence or absence of roosting bats***
- ***The qualified biologist shall document all bat survey, monitoring, and protection measure activities and prepare a summary report for LACFCD.***

448 In the 1<sup>st</sup> paragraph under BIOLOGY-2, the following additions have been made:

Alternative 3, Configuration D, ***Option 1 and Alternative 3 Configuration D, Option 2*** will impact approximately 0.4 acre of Riversidean Alluvial Fan Sage Scrub within the Proposed Project site. Impacts to Riversidean Alluvial Fan Sage Scrub will result in a potentially significant impact requiring mitigation; however, disturbance of this community will be reduced by approximately 0.7 acres (64 percent) as compared to the Proposed Project (Table 4.6-5). To minimize

~~impacts due to~~ To compensate for the loss of Riversidean Alluvial Fan Sage Scrub, the LACFCD would restore and enhance Riversidean Alluvial Fan Sage Scrub habitat either onsite or offsite to achieve not less than a 1:1 replacement, or no net loss, of Riversidean Alluvial Fan Sage Scrub Mitigation Measure (MM BIO-6) has been provided. Removing the sediment will benefit the alluvial fan sage scrub since the habitat is currently buried under sediment and therefore considered poor quality. With implementation of this mitigation measure, impacts to Riversidean Alluvial Fan Sage Scrub will be reduced to a level below significance.

448 In the 2<sup>nd</sup> paragraph under BIOLOGY-2, the following clarifications have been made:

***Alternative 3, Configuration D, Option 1*** will impact approximately 35.0 acres of riparian habitat (28.9 acres of Riparian Woodland and 4-3 6.1 acres of **Mule Fat Thickets**) Mule Fat Scrub within the Proposed Project site, while **Alternative 3, Configuration D, Option 2** will impact approximately 32.6 acres of riparian habitat (28.9 acres of Riparian Woodland and 3.7 acres of Mule Fat Thickets). Riparian Woodland and **Mule Fat Thickets** Mule Fat Scrub are rare plant communities that provide nesting habitat for riparian species. Impacts to these habitats will result in a potentially significant impact; however, disturbance of Riparian Woodland and **Mule Fat Thickets under Option 1** Mule Fat Scrub will be reduced by approximately 22.5 acres (44 percent) and 5.0 acres (54 percent), respectively, as compared to the Proposed Project. **In comparison, disturbance of Riparian Woodland and Mule Fat Thickets under Alternative 3, Configuration D, Option 2 will be reduced by approximately 22.5 acres (44 percent) and 7.4 acres (67 percent), respectively as compared to the Proposed Project.** To compensate for minimize impacts due to the loss of riparian habitats (Riparian Woodland and **Mule Fat Thickets**) Mule Fat Scrub, the LACFCD would restore and enhance riparian habitats either onsite or offsite to achieve not less than a 1:1 replacement, or no net loss, of riparian habitats (Riparian Woodland and **Mule Fat Thickets**) Mitigation Measures (MM BIO-7 and MM BIO-8), have been provided. With implementation of this mitigation measure, impacts to Riparian Woodland and **Mule Fat Thickets** Mule Fat Scrub will be reduced to a level below significance.

449 The title for Figure 4.6-12 has been revised:

**Figure 4.6-12: Alternative 3, Configuration D, Option 1 Impacted Water Features**

450 The following Figure has been added:

**Figure 4.6-13: Alternative 3, Configuration D, Option 2 Impacted Water Features**

451 In the 3<sup>rd</sup> paragraph under BIOLOGY-2, the following additions have been made:

Figure 4.6-12: Alternative 3, Configuration D, **Option 1** Impacted Water Features **and Figure 4.6-13: Alternative 3, Configuration D, Option 2** shows the boundaries of the areas and water features that will be impacted. CDFW jurisdiction includes the water features shown on these maps plus the habitat areas located outside of these features and within the boundaries of the alternatives. Alternative 3, Configuration D, Option 1 would impact approximately 75.5 acres of CDFW jurisdiction while Option 2 would impact approximately 70.8 acres of CDFW jurisdiction. Compared to the Proposed Project, Alternative 3, Configuration D, **Option 1 and Alternative 3, Configuration D, Option 2** will reduce impacts to these CDFW jurisdiction, including the water features, by



approximately ~~19~~ 36 percent and 40 percent, respectively. To compensate for the minimize impacts to habitats within CDFW jurisdiction found within these ~~water features~~ boundaries of the two options for Alternative 3, Configuration D, the LACFCD would restore and enhance riparian habitats and other sensitive natural communities within onsite or offsite CDFW jurisdictional areas to achieve not less than a 1:1 replacement, or no net loss, of these habitats within CDFW jurisdictional areas. ~~Mitigation Measure (MM BIO-8) has been provided. With implementation of this mitigation measure, impacts will be reduced to a level below significance~~

451

In MM BIO – 8, the following clarifications have been made:

**MM BIO – 8:** A combination of onsite and offsite habitat restoration, enhancement, and exotic plant removal shall be implemented by LACFCD at a 1:1 ratio for impacted riparian habitat, sensitive natural communities, habitat and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic plant species removal. ***Non-native, weedy*** ~~Ruderal~~ habitats within

the basin shall be utilized whenever possible as mitigation sites. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters. Measures to achieve not less than a 1:1 replacement, or no net loss, of riparian habitat, sensitive natural communities, and jurisdictional waters shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub), and jurisdictional waters (federally protected wetlands).
- Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.
- Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:
  - Site-specific container plant and seed palettes,
  - Irrigation plan,
  - Nonnative and invasive plant species removal,
  - Maintenance and monitoring schedule,
  - Qualitative and quantitative monitoring methodologies,
  - Selection criteria of reference sites,
  - Performance standards of the mitigation sites,
  - Monitoring reports and annual reports schedule,
  - Mitigation long-term management plan, and
  - Funding description for implementation and long-term management.
- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Quantitatively This mitigation measure shall be monitored for success for five years following implementation the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1

replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.

- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species for plant species which are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.
- Submit a A report of the monitoring results shall be submitted annually, during the five years following implementation of the restoration and enhancement activities at the mitigation sites, to resource agencies as required by the Section 401 Certification, Section 404 permit, and a Streambed Alteration Agreement until the mitigation sites have met the performance standards.

452

In the 1<sup>st</sup> paragraph under BIOLOGY-3, the following edits have been made:

**Figures 4.6-12 and 4.6-13** above, show the water features that will be impacted by this alternative. Compared to the Proposed Project, Alternative 3, Configuration D will reduce impacts to these water features by approximately 19 percent. ~~To minimize impacts to jurisdictional waters found within these water features,~~ As stated for the Proposed Project, the LACFCD will implement successful establishment, reestablishment, rehabilitation, and enhancement of federally protected wetlands to compensate for impacts associated with Alternative 3, Configuration D. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Mitigation and Monitoring Plan (HMMP) that will outline the means and methods of successful establishment, reestablishment, rehabilitation, and enhancement of federally protected wetlands. The LACFCD will implement the HMMP and will monitor and apply adaptive management, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to federally-protected wetlands at

alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented by other agencies, federally protected wetlands can be successfully established, reestablished, rehabilitated, and enhanced. Successful establishment, reestablishment, rehabilitation, and enhancement of federally-protected wetlands would achieve not less than 1:1 replacement, or no net loss, of federally protected wetlands. Therefore, implementation of Mitigation Measure MM-BIO-8 has been provided. With implementation of this mitigation measure, impacts will be reduced would reduce impacts to federally protected wetlands to a level below significance. Based on the evidence cited above and the steps outlined in Mitigation Measure BIO-8 to ensure a successful replacement at a 1:1 ratio, neither a higher mitigation ratio nor other Mitigation Measures would be necessary to reduce impacts to below level of significance.

453

In the 1<sup>st</sup> paragraph under BIOLOGY-4, the following information has been added:

The Proposed Project area is predominantly open for wildlife movement and habitat connectivity. ***Sediment removal will not be continuous, as excavation is expected to occur only in the drier months (April to December, excluding holidays). In addition, sediment removal activities would not completely block the Proposed Project site from surrounding habitat, would occur only during the day, and would not interfere with nighttime wildlife activity. Although some wildlife may be temporarily displaced during construction, wildlife would not be physically prevented from moving around and into the basin area.*** Sediment removal and reservoir management activities associated with Alternative 3, Configuration D ~~will~~ would remove vegetation used for cover, foraging, and nursery sites and interfere temporarily with the movement of native resident or migratory wildlife species, resulting in a potentially significant impact. After the sediment removal phase is completed and after the annual reservoir management activities are completed, equipment will no longer be operating and wildlife would be able to travel unimpeded through the Proposed Project site. With Alternative 3, Configuration D, the LACFCD would restore and enhance riparian habitats (Riparian Woodland and Mule Fat Thickets), Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub in the areas located outside of the boundary of the Reservoir Management Area and potentially at offsite areas to create additional cover, foraging, and nursery sites for wildlife as they move through during migration or as they travel to and from parts of their territories. Reduction in sensitive habitat would interfere with use of the habitat for wildlife nursery sites, resulting in a potentially significant impact. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of riparian and other sensitive habitats and thus provide additional cover and foraging opportunities, migratory habitat, and nursery sites for wildlife. The LACFCD will implement the Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to the movement of native resident or migratory fish or wildlife species, with established native resident or migratory wildlife corridors, or with the use of native wildlife nursery sites at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other

projects, riparian and other sensitive habitats that support wildlife movement, wildlife migration, and wildlife nursery sites can be successfully restored and enhanced. Successful restoration and enhancement of the habitats that support wildlife movement, wildlife migration, and wildlife nursery sites would achieve not less than a 1:1 replacement, or no net loss, of wildlife habitat. Therefore, implementation of ~~To minimize impacts to less than significant, Mitigation Measures MM BIO-1 through MM BIO-8 has been provided~~ would reduce impacts to habitats supporting wildlife movement, wildlife migration, and wildlife nursery sites to a level below significance. This impact will be reduced in comparison to the Proposed Project due to the reduction in area disturbed during sediment removal and both reservoir management options.

458

In the 1<sup>st</sup> paragraph under GHG EMISSIONS-1, the following information has been added:

Alternative 3, Configuration D will use the same amount and type of construction equipment as the Proposed Project and involve the same number of truck trips on a daily basis for sediment removal and reservoir management; however, sediment removal under this Alternative is expected to have a shorter duration than the Proposed Project due to the reduced amount of sediment to be removed. ***Use of sediment removal dump trucks that meet EPA's emission standards for Model Year 2007 2010 or later and use of off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment, would result in a reduction of GHG emissions.*** As noted in Section 3.6, generation of greenhouse gas emissions under the Proposed Project is not "cumulatively considerable" and is therefore less than significant under CEQA. Alternative 3, Configuration D will have the same amount of daily equipment

**Section 8.0 CLARIFICATIONS AND MODIFICATIONS**

**Page 764**

~~while every reasonable effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. **Therefore, impacts during sediment removal will be less than significant.** Therefore, Alternative 5, Haul Route Alternative could result in a potentially significant impact. This impact will be similar in comparison to the Proposed Project due to the identical excavation area and associated sediment removal activities.~~

555 In the 1<sup>st</sup> paragraph under Mitigation Measures, the following clarification has been made:

**MM AQ-1:** LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use **only** sediment removal dump trucks that meet EPA's emission standards for Model Year ~~2007~~2010 **or later** ~~as reasonably feasible.~~

555 In the 1<sup>st</sup> paragraph under Residual Impacts After Mitigation, the following clarifications have been made:

~~Implementation of these mitigations would reduce the Alternative 5, Haul Route Alternative's combined NO<sub>x</sub> emissions during the sediment removal phase; however, while every effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. These mitigations are enforceable through the Mitigation Monitoring and Reporting Program. Therefore, this impact remains significant and unavoidable.~~

555 In the 1<sup>st</sup> paragraph under AIR QUALITY-2, the following clarifications have been made:

~~As with the Proposed Project, under Alternative 5, Haul Route Alternative emissions of NO<sub>x</sub> exceed the Daily Regional Threshold during sediment removal, resulting in a potentially significant impact. Implementation of Mitigation Measures MM AQ-1 and MM AQ-2 will result in a reduction of Alternative 5, Haul Route Alternative's combined NO<sub>x</sub> emissions during sediment removal; however, while every reasonable effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce emissions to a level of less than significant. Therefore, Alternative 5, Haul Route Alternative will result in a potentially significant impact. This impact will be similar in comparison to the Proposed Project due to the identical excavation area and associated sediment removal activities.~~

556 In the 1<sup>st</sup> paragraph under Residual Impacts After Mitigation, the following clarifications have been made:

~~Sediment removal will not exceed any standard SCAQMD Regional Threshold except for combined NO<sub>x</sub> emissions. Implementation of these mitigations would reduce combined NO<sub>x</sub> emissions for Alternative 5, Haul Route Alternative during the sediment removal phase; however, while every effort will be made to strive for the newest vehicles/equipment, the actual vehicle/equipment fleet may not reach the levels required to reduce the NO<sub>x</sub> emissions to a level of less than significant. Therefore, this impact remains significant and unavoidable.~~

**Section 8.0 CLARIFICATIONS AND MODIFICATIONS**

**Page 767**



563 In the 2<sup>nd</sup> paragraph under BIOLOGY-2, the following clarifications have been made:

This Alternative will impact the same amount of Riparian Woodland and **Mule Fat Thickets** ~~Mule Fat Scrub~~ as the Proposed Project. Riparian Woodland and **Mule Fat Thickets** ~~Mule Fat Scrub~~ are rare plant communities that provide nesting habitat for riparian species. Impacts to these habitats will result in a potentially significant impact. To minimize impacts due to the loss of Riparian Woodland and **Mule Fat Thickets** ~~Mule Fat Scrub~~, Mitigation Measures MM BIO-7 and MM BIO-8 have been provided. With implementation of these mitigation measures, impacts to Riparian Woodland and **Mule Fat Thickets** ~~Mule Fat Scrub~~ will be reduced to a level below significance.

564 In the 3<sup>rd</sup> paragraph under Mitigation Measures, the following clarification has been made:

**MM BIO – 8:** A combination of onsite and offsite habitat restoration, enhancement, and exotic plant removal shall be implemented by LACFCD at a 1:1 ratio for impacted riparian habitat, sensitive natural communities, ~~habitat~~ and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic plant species removal. **Non-native, weedy** ~~Ruderal~~ habitats within the basin shall be utilized whenever possible as mitigation sites. LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters. Measures to achieve not less than a 1:1 replacement, or no net loss, of riparian habitat, sensitive natural communities, and jurisdictional waters shall include but not be limited to the following:

- Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub), and jurisdictional waters (federally protected wetlands).
- Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.  
Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.
- Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:

- Site-specific container plant and seed palettes,
- Irrigation plan,
- Nonnative and invasive plant species removal,
- Maintenance and monitoring schedule,
- Qualitative and quantitative monitoring methodologies,
- Selection criteria of reference sites,
- Performance standards of the mitigation sites,
- Monitoring reports and annual reports schedule,
- Mitigation long-term management plan, and
- Funding description for implementation and long-term management.
- Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Quantitatively This mitigation measure shall be monitored for success for five years following implementation the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.
- Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:
  - Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,
  - Add soil amendments if problem soils may be inhibiting plant growth,
  - Replant if plant survival is low or to increase plant species cover or diversity,
  - Install different plant species for plant species which are not surviving, and
  - Close trails or install barriers if human caused impacts are damaging the mitigation sites.
- Implement and monitor the required mitigation at alternative sites, chosen based on priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.
- Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.
- Submit a A-report of the monitoring results shall be submitted annually, during the five years following implementation of the restoration and enhancement activities at the mitigation sites, to resource agencies as required by the Section

401 Certification, Section 404 permit, and a Streambed Alteration Agreement until the mitigation sites have met the performance standards.

566

In the 1<sup>st</sup> paragraph under BIOLOGY-4, the following information has been added:

The Proposed Project area is predominantly open for wildlife movement and habitat connectivity. *Sediment removal will not be continuous, as excavation is expected to occur only in the drier months (April to December, excluding holidays). In addition, sediment removal activities would not completely block the Proposed Project site from surrounding habitat, would occur only during the day, and would not interfere with nighttime wildlife activity. Although some wildlife may be temporarily displaced during construction, wildlife would not be physically prevented from moving around and into the basin area.* Sediment removal and reservoir management activities associated with Alternative 5, Haul Route Alternative will ~~would remove vegetation used for cover, foraging, and nursery sites and~~ interfere temporarily with the movement of native resident or migratory wildlife species, resulting in a potentially significant impact. Reduction in sensitive habitat would interfere with use of the habitat for wildlife nursery sites, resulting in a potentially significant impact. ~~After the sediment removal phase is completed and after the annual reservoir management activities are completed, equipment will no longer be operating and wildlife would be able to travel unimpeded through the Proposed Project site. With Alternative 3, Configuration D, the LACFCD would restore and enhance riparian habitats (Riparian Woodland and Mule Fat Thickets), Coastal Sage Scrub, and Riversidean Alluvial Fan Sage Scrub in the areas located outside of the boundary of the Reservoir Management Area and potentially at offsite areas to create additional cover, foraging, and nursery sites for wildlife as they move through during migration or as they travel to and from parts of their territories. Reduction in sensitive habitat would interfere with use of the habitat for wildlife nursery sites, resulting in a potentially significant impact. The LACFCD, with the help of professional restoration ecologists, will develop a Habitat Restoration Plan that will outline the means and methods of successful restoration and enhancement of riparian and other sensitive habitats and thus provide additional cover and foraging opportunities, migratory habitat, and nursery sites for wildlife. The LACFCD will implement the Habitat Restoration Plan and will monitor and apply adaptive management measures, as necessary. If adaptive management measures are unsuccessful and the mitigation sites do not achieve the established performance standards, then the LACFCD will implement the mitigation for impacts to the movement of native resident or migratory fish or wildlife species, with established native resident or migratory wildlife corridors, or with the use of native wildlife nursery sites at alternative sites and will monitor those sites until the established performance standards are achieved. Based on past successful mitigation implemented for other projects, riparian and other sensitive habitats that support wildlife movement, wildlife migration, and wildlife nursery sites can be successfully restored and enhanced. Successful restoration and enhancement of the habitats that support wildlife movement, wildlife migration, and wildlife nursery sites would achieve not less than a 1:1 replacement, or no net loss, of wildlife habitat. Therefore, implementation of ~~To minimize impacts to less than significant, Mitigation Measures MM BIO-1 through MM BIO-8 has been provided,~~ would reduce impacts to habitats supporting wildlife movement, wildlife migration, and wildlife nursery sites to a~~

level below significance. This impact will be similar in comparison to the Proposed Project due to the similarities in area disturbed during sediment removal and reservoir management Option 1.

571 In the 1<sup>st</sup> paragraph under GHG EMISSIONS-1, the following information has been added:

Alternative 5, Haul Route Alternative will use the same amount and type of construction equipment as the Proposed Project. ***Use of sediment removal dump trucks that meet EPA's emission standards for Model Year ~~2007~~ 2010 or later and use of off-road equipment***

**Section 10.0 MITIGATION MONITORING AND  
REPORTING PROGRAM**

**Pages 2054 – 2059**

## **SECTION 10.0 – MITIGATION MONITORING AND REPORTING PROGRAM**

Public Resources Code, Section 21081.6 (Assembly Bill 3180) requires that mitigation measures identified in environmental review documents prepared in accordance with California Environmental Quality Act (CEQA) are implemented after a project is approved. Therefore, this Mitigation Monitoring and Reporting Program (MMRP) has been prepared to ensure compliance with the adopted mitigation measures during the pre-sediment removal, sediment removal, and reservoir management phases of the Devil's Gate Sediment Removal and Management Project (Project).

LACFCD is the agency responsible for implementation of the mitigation measures identified in the EIR. This MMRP provides LACFCD with a convenient mechanism for quickly reviewing all the mitigation measures including the ability to focus on select information such as timing. LACDPW is carrying out the Project on behalf of LACFCD. The MMRP includes the following information for each mitigation measure:

- The phase of the project during which the required mitigation measure must be implemented;
- The phase of the project during which the required mitigation measure must be monitored;
- The enforcement agency; and
- The monitoring agency.

The MMRP includes a checklist to be used during the mitigation monitoring period. The checklist will verify the name of the monitor, the date of the monitoring activity, and any related remarks for each mitigation measure.

MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
<b>AIR QUALITY</b>			
<b>MM AQ-1:</b> LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use only sediment removal dump trucks that meet the EPA's emission standards for Model Year <u>2010</u> <del>2007</del> or later.	Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management	Sediment Removal; Reservoir Management	Los Angeles County Fire Control District
<b>MM AQ-2:</b> LACFCD shall require all construction contractors during the sediment removal phase of the Proposed Project to use off-road equipment that meets, at a minimum, EPA's emission standards for Tier 3 equipment.	Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management	Sediment Removal; Reservoir Management	Los Angeles County Fire Control District
<b>BIOLOGICAL RESOURCES</b>			
<b>MM BIO – 1:</b> A qualified biological monitor shall be present during initial ground- or vegetation-disturbing project-related activities to provide measures and monitor for wildlife in harm's way. This includes initial ground- or vegetation-disturbing project-related activities at the annual start of each year of sediment removal or maintenance activities. Following initial project-related activities, a qualified monitoring biologist shall be present as necessary to maintain the implemented protection measures and monitor for additional species in harm's way. These protection measures shall include, as appropriate: redirecting wildlife, identifying areas that may require exclusionary devices (e.g., fencing), or capturing and relocating wildlife outside the work area. Any captured species shall be relocated to adjacent appropriate habitat that is contiguous to adjacent habitat and not impacted by project-related disturbance activities.	Pre-Sediment Removal; Sediment Removal; Reservoir Management	Pre-Sediment Removal; Sediment Removal; Reservoir Management	Los Angeles County Fire Control District
<b>MM BIO – 2:</b> Within 90 days prior to ground-disturbing activities, a sensitive species educational briefing shall be conducted by a qualified biologist for construction personnel. The biologist will identify all sensitive resources that may be encountered onsite, and construction personnel will be instructed to avoid and report any sightings of sensitive species to LACFCD or the monitoring biologist. Educational briefings shall be repeated annually for the duration of the sediment removal.	Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management	Pre-Sediment Removal; Sediment Removal; Reservoir Management	Los Angeles County Fire Control District
<b>MM BIO – 3:</b> Within 90 days prior to ground-disturbing activities, a preconstruction survey shall be conducted by a qualified biologist for the presence of any sensitive species in harm's way, including coast range newt, the southwestern pond turtle, and the two-striped garter snake. If sensitive species are observed in harm's way, the qualified biologist will develop and implement appropriate protection measures for that species. These protection measures shall include, as appropriate: redirecting the	Pre-Sediment Removal; Sediment Removal; Reservoir Management	Pre-Sediment Removal; Sediment Removal; Reservoir Management	Los Angeles County Fire Control District

MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
<p><b>MM BIO – 4:</b> LACFCD, in consultation with a qualified biologist, will employ bird exclusionary measures (e.g., mylar flagging) prior to the start of bird breeding season to prevent birds nesting within established boundaries of the project. Prior to commencement of sediment removal activities within bird breeding season (March 1-August 31), a preconstruction bird nesting survey shall be conducted by a qualified biologist for the presence of any nesting bird within 300 feet of the construction work area. The surveys shall be conducted 30 days prior to the disturbance of suitable nesting habitat by a qualified biologist with experience in conducting nesting bird surveys. The surveys shall continue on a weekly basis with the last survey being conducted no more than 3 days prior to the initiation of clearance/construction work. Preconstruction surveys shall be repeated annually for the duration of the sediment removal.</p> <p>If an active nest is found, the qualified biologist will develop and implement appropriate protection measures for that nest. These protection measures shall include, as appropriate, construction of exclusionary devices (e.g., netting) or avoidance buffers. The biologist shall have the discretion to adjust the buffer area as appropriate based on the proposed construction activity, the bird species involved, and the status of the nest and nesting activity; but shall be no less than 30 feet. Work in the buffer area can resume once the nest is determined to be inactive by the monitoring biologist.</p>	<p>Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management</p>	<p>Pre-Sediment Removal; Sediment Removal; Reservoir Management</p>	<p>Los Angeles County Fire Control District</p>



MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
<p><b>MM BIO – 5:</b> Within 30 days prior to commencement of vegetation or structure removal activities, a preconstruction bat survey shall be conducted by a qualified biologist for the presence of any roosting bats. Acoustic recognition technology shall be used if feasible and appropriate. If either a bat maternity roost or hibernacula (structures used by bats for hibernation) are present, a qualified biologist will develop and implement appropriate protection measures for that maternity roost or hibernacula. These protection measures shall include, as appropriate: safely evicting non-breeding bat hibernacula, establishment of avoidance buffers, or replacement of roosts at a suitable location. These measures shall also include as appropriate:</p> <ul style="list-style-type: none"> <li>• To the extent feasible, trees that have been identified as roosting sites shall be removed or relocated between October 1 and February 28.</li> <li>• When trees must be removed during the maternity roost season (March 1 to September 30), a qualified bat specialist shall conduct a preconstruction survey to identify those trees proposed for disturbance that could provide hibernacula or nursery colony roosting habitat for bats.</li> <li>• Trees identified as potentially supporting an active nursery roost shall be inspected by a qualified biologist no greater than 7 days prior to tree disturbance to determine presence or absence of roosting bats.</li> <li>• Trees determined to support active maternity roosts will be left in place until the end of the maternity season (September 30).</li> <li>• If bats are not detected in a tree, but the qualified biologist determined that roosting bats may still be present, trees shall be removed as follows:                         <ul style="list-style-type: none"> <li>○ Pushing the tree down with heavy machinery instead of felling the tree with a chainsaw</li> <li>○ First pushing the tree lightly 2 to 3 times with a pause of 30 seconds in between each nudge to allow bats to become active, and then pushing the tree to the ground slowly.</li> <li>○ Allowing the tree to remain in place for 24 to 48 hours until inspected by the qualified biologist for presence or absence of roosting bats.</li> </ul> </li> <li>• The qualified biologist shall document all bat survey, monitoring, and protection measure activities and prepare a summary report for LACFCD.</li> </ul>	<p>Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management</p>	<p>Pre-Sediment Removal; Sediment Removal; Reservoir Management</p>	<p>Los Angeles County Fire Control District</p>
<p><b>MM BIO – 6:</b> Riversidean Alluvial Fan Sage Scrub habitat shall be restored and/or enhanced at a 1:1 ratio by acreage. <u>LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of this sensitive habitat. Measures to achieve not less than a 1:1 replacement or no net loss of Riversidean Alluvial Fan Sage Scrub shall include but</u></p>	<p>Reservoir Management</p> <ul style="list-style-type: none"> <li>• <u>Prepare Habitat Restoration Plan</u></li> <li>• <u>Identify/Map Mitigation Sites</u></li> </ul>	<p>Reservoir Management</p> <ul style="list-style-type: none"> <li>• <u>Identify Reference Sites</u></li> <li>• <u>Conduct Qualitative and Quantitative Monitoring</u></li> </ul>	<p>Los Angeles County Fire Control District</p>

MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
<p>River watershed.</p> <ul style="list-style-type: none"> <li>• <u>Select offsite reference sites where Riversidean Alluvial Fan Sage Scrub is the established plant community. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, and native plant species richness (number of different plant species).</u></li> <li>• <u>Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:</u> <ul style="list-style-type: none"> <li>○ <u>Site-specific container plant (if applicable) and seed palettes,</u></li> <li>○ <u>Irrigation plan,</u></li> <li>○ <u>Nonnative and invasive plant species removal,</u></li> <li>○ <u>Maintenance and monitoring schedule,</u></li> <li>○ <u>Qualitative and quantitative monitoring methodologies,</u></li> <li>○ <u>Selection criteria of reference sites,</u></li> <li>○ <u>Performance standards of the mitigation sites,</u></li> <li>○ <u>Monitoring reports and annual reports schedule,</u></li> <li>○ <u>Mitigation long-term management plan, and</u></li> <li>○ <u>Funding description for implementation and long-term management.</u></li> </ul> </li> <li>• <u>Prepare an as-built plan after the installation of the plant and seed materials has been completed to document the acreage of each restored or enhanced plant community on the mitigation sites and to show that not less than a 1:1 replacement of sensitive habitats has been achieved.</u></li> <li>• <u>Quantitatively monitor the mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of Riversidean Alluvial Fan Sage Scrub has been achieved.</u></li> <li>• <u>Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress toward achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:</u> <ul style="list-style-type: none"> <li>○ <u>Correctively re-grade areas if hydrologic or other</u></li> </ul> </li> </ul>			

MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
<ul style="list-style-type: none"> <li>○ <u>Close trails or install barriers if human caused impacts are damaging the mitigation sites.</u></li> <li>● <u>Implement and monitor the required mitigation at alternative sites, chosen based on same priority methodology, if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.</u></li> <li>● <u>Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.</u></li> </ul>			
<p><b>MM BIO – 7:</b> Within 90 days prior to ground-disturbing activities, a qualified biologist shall conduct a tree survey within the project footprint to identify <u>native city-protected trees that would will-be removed or potentially affected by the Proposed Project, and native city-protected trees that can be avoided, and native city-protected trees that will require root zone protection.</u> LACFCD <u>would will-replace native city-protected trees that cannot be avoided.</u> The replacement is expected to be <u>at a up to 1:1 ratio by canopy acreage.</u> The biological monitor shall implement measures to protect the root zone of oak trees that may be impacted immediately adjacent to the project site and along access roads. <u>The acreage occupied by the canopies of the native city-protected trees to be removed will determine the appropriate level of tree replacement.</u> LACFCD shall identify tree replacement areas that are no less than the acreage of the native city-protected tree canopies to be removed. Priority for tree replacement locations shall be <u>onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.</u> The number of replacement trees installed by LACFCD will be <u>greater than the number of trees to be removed should the replacement tree be smaller and younger than the tree to be removed.</u> LACFCD shall monitor the survival of the replacement trees for 5 years and <u>replace those that do not survive within the monitoring period, ensuring that not less than 1:1 ratio of replacement, or no net loss, has been achieved.</u></p>	<p>Pre-Sediment Removal; Sediment Removal; Reservoir Management</p> <ul style="list-style-type: none"> <li>● <u>Conduct Tree Survey</u></li> <li>● <u>Identify and Protect Oak Tree Root Zones</u></li> <li>● <u>Identify/Map Mitigation Sites</u></li> <li>● <u>Prepare Habitat Restoration Plan</u></li> <li>● <u>Install Plant Materials</u></li> <li>● <u>Monitor Installation</u></li> <li>● <u>Install Irrigation, if Necessary</u></li> <li>● <u>Prepare As-Built Report</u></li> <li>● <u>Conduct Maintenance</u></li> <li>● <u>Prepare Monitoring Reports</u></li> </ul>	<p>Pre-Sediment Removal; Sediment Removal; Reservoir Management</p> <ul style="list-style-type: none"> <li>● <u>Identify Reference Sites</u></li> <li>● <u>Conduct Qualitative and Quantitative Monitoring</u></li> <li>● <u>Conduct Maintenance</u></li> <li>● <u>Implement Adaptive Management Measures, if Necessary</u></li> <li>● <u>Prepare Monitoring Reports</u></li> <li>● <u>Prepare Annual Reports</u></li> <li>● <u>Achieve Mitigation Site Sign-Off</u></li> </ul>	<p>Los Angeles County Fire Control District</p>

MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
<p><b>MM BIO – 8:</b> A combination of onsite and offsite habitat restoration, enhancement, and exotic <u>plant</u> removal shall be implemented by LACFCD at a 1:1 ratio for impacted <u>riparian habitat</u>, sensitive <u>natural communities</u>, <del>habitat</del> and jurisdictional waters. Habitat restoration/enhancement shall include use of willow cuttings and exotic <u>plant</u> species removal. Non-native, weedy habitats within the basin shall be utilized whenever possible as mitigation sites. <u>LACFCD, with the help of professional restoration ecologists, will develop the means and methods of successful restoration and enhancement of riparian habitat, sensitive natural communities, and jurisdictional waters.</u> Measures to achieve not less than a 1:1 replacement, or no net loss, of <u>riparian habitat, sensitive natural communities, and jurisdictional waters</u> shall include but not be limited to the following:</p> <ul style="list-style-type: none"> <li>• <u>Conduct a vegetation survey within the impact area prior to commencement of vegetation removal activities to verify the impact acreages of riparian habitat (Riparian Woodland and Mule Fat Thickets), sensitive natural communities (Coastal Sage Scrub), and jurisdictional waters (federally protected wetlands).</u></li> <li>• <u>Identify and map the selected mitigation areas where riparian habitat, sensitive natural communities, and federally protected wetlands will be enhanced or restored. Priority for mitigation site locations shall be onsite, offsite within Arroyo Seco subwatershed, and offsite within the greater Los Angeles River watershed.</u></li> <li>• <u>Select offsite reference sites where riparian habitats (Riparian Woodland and Mule Fat Thickets) and sensitive natural communities (coastal sage scrub) are the established plant communities and where federally protected wetlands are present. The reference sites will be used to establish the necessary performance standards to which the mitigation site will be measured. Performance standard parameters will include percent cover of native plant species, percent cover of nonnative and invasive plant species, native plant species richness (number of different plant species), structural patch richness, and wildlife use.</u></li> <li>• <u>Prepare and implement a site-specific Habitat Restoration Plan that will result in the successful restoration and enhancement at the selected mitigation sites. The Habitat Restoration Plan, at a minimum, shall include guidelines and specifications for the following:</u> <ul style="list-style-type: none"> <li>○ <u>Site-specific container plant and seed palettes,</u></li> <li>○ <u>Irrigation plan,</u></li> <li>○ <u>Nonnative and invasive plant species removal,</u></li> </ul> </li> </ul>	<p>Reservoir Management</p> <ul style="list-style-type: none"> <li>• <u>Prepare Habitat Restoration Plan</u></li> <li>• <u>Identify/Map Mitigation Sites</u></li> <li>• <u>Install Plant Materials</u></li> <li>• <u>Monitor Installation</u></li> <li>• <u>Install Irrigation, if Necessary</u></li> <li>• <u>Prepare As-Built Report</u></li> <li>• <u>Conduct Maintenance</u></li> <li>• <u>Prepare Monitoring Reports</u></li> </ul>	<p>Reservoir Management</p> <ul style="list-style-type: none"> <li>• <u>Identify Reference Sites</u></li> <li>• <u>Conduct Qualitative and Quantitative Monitoring</u></li> <li>• <u>Conduct Maintenance</u></li> <li>• <u>Implement Adaptive Management Measures, if Necessary</u></li> <li>• <u>Prepare Monitoring Reports</u></li> <li>• <u>Prepare Annual Reports</u></li> <li>• <u>Achieve Mitigation Site Sign-Off</u></li> </ul>	<p>Los Angeles County Fire Control District</p>

MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
<p>been completed to document the acreage of each restored or enhanced plant community on the mitigation sites to show that the sites contain not less than a 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.</p> <ul style="list-style-type: none"> <li>Quantitatively <del>This mitigation measure shall be monitored for success for five years following implementation the</del> mitigation sites until the performance standards have been met and restoration and enhancement of not less than 1:1 replacement of riparian habitats, sensitive natural communities, and federally protected wetlands has been achieved.                             <ul style="list-style-type: none"> <li>Implement adaptive management measures if, during monitoring, the mitigation sites do not demonstrate measurable progress achieving the necessary performance standards or if unforeseen circumstances damage the mitigation sites. Adaptive management measures will include but not be limited to:                                     <ul style="list-style-type: none"> <li>Correctively re-grade areas if hydrologic or other conditions negatively affect the mitigation sites,</li> <li>Add soil amendments if problem soils may be inhibiting plant growth,</li> <li>Replant if plant survival is low or to increase plant species cover or diversity,</li> <li>Install different plant species for plant species which are not surviving, and</li> <li>Close trails or install barriers if human caused impacts are damaging the mitigation sites.</li> </ul> </li> <li>Implement and monitor the required mitigation at alternative sites if the mitigation sites do not achieve the performance standards after the implementation of adaptive management measures. LACFCD shall conduct qualitative and annual quantitative monitoring and prepare annual monitoring reports until the established performance standards are achieved.</li> <li>Ensure the allocation and encumbrance of the funding necessary to implement the Habitat Restoration Plan, adaptive management measures, alternative mitigation sites (if necessary), and long-term management and protection of the mitigation sites.</li> <li>Submit a A-report of the monitoring results <del>shall be submitted annually, during the five years</del> following implementation of the restoration and enhancement activities at the mitigation sites. to resource agencies as</li> </ul> </li> </ul>			

MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
discovery should be diverted until a qualified archaeologist and/or paleontologist evaluates the discovery.	Reservoir Management		
<b>MM CUL-2:</b> If sediment removal or reservoir management activities exceed the depth of the historic flood deposits and encounter native sediments, these activities will be monitored by a qualified paleontologist. In the event that this occurs and paleontological materials are observed, the excavation in the proximity of the discovery should be diverted until a qualified paleontologist evaluates the discovery.	Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management	Sediment Removal; Reservoir Management	Los Angeles County Fire Control District
<b>MM CUL-3:</b> In the event human remains are discovered, all work in the area must be halted until the County Coroner identifies the remains and makes recommendations regarding their appropriate treatment pursuant to PRC Section 5097.98.	Final Plans and Specifications; Sediment Removal; Reservoir Management	Sediment Removal; Reservoir Management	Los Angeles County Fire Control District
<b>LAND USE AND PLANNING</b>			
<b>MM LAN-1:</b> Temporary impacts to designated recreational facilities and trails shall be minimized through advance communication and redirection to the nearest facility in the vicinity of the Proposed Project. Prior to completion of final plans and specifications, the LACFCD shall review the plans and specifications to ensure that they contain proper language requiring that signs be posted at the nearby parking lots and trailheads at least one month in advance of sediment removal activities.	Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management	Pre-Sediment Removal; Sediment Removal; Reservoir Management	Los Angeles County Fire Control District
<b>NOISE/VIBRATION</b>			
<b>MM N-1:</b> The LACFCD shall restrict the operation of any off-road construction equipment that is powered by a greater than 200-horsepower engine from operating within 180 feet of any offsite residential structure. Equipment that is not performing any earth-moving activities and is solely operating for entering or leaving the site via the access roads to the reservoir is exempted from this requirement.	Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management	Sediment Removal; Reservoir Management	Los Angeles County Fire Control District

MITIGATION MONITORING AND REPORTING PROGRAM			
Devil's Gate Reservoir Sediment Removal and Management Project			
Mitigation Measure	Implementation Phase*	Monitoring Phase*	Enforcement Agency
<b>TRANSPORTATION/TRAFFIC</b>			
<b>MM TRA-1:</b> Proposed Project haul trucks will not deliver to the Vulcan Material Reliance Facility during the PM peak period.	Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management	Sediment Removal; Reservoir Management	Los Angeles County Fire Control District
<b>MM TRA-2:</b> Proposed Project haul trucks will not deliver to the Boulevard Pit during the PM peak period.	Final Plans and Specifications; Pre-Sediment Removal; Sediment Removal; Reservoir Management	Sediment Removal; Reservoir Management	Los Angeles County Fire Control District

\*The Implementation and Monitoring phases are broken down into four categories: Final Plans and Specifications; Pre- Sediment Removal; Sediment Removal; and Reservoir Management. Each measure must be incorporated into the final approved design, plans, and specifications for the project. "Pre- Sediment Removal" refers to measures that are required aspects of the Sediment Removal phase. "Reservoir Management" refers to all aspects of the Reservoir Management phase.

## **Appendix L – Devils Gate CEQA Mitigation Site Comparison**

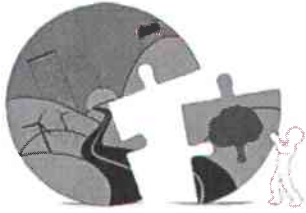


**Appendix L - Compensatory Mitigation Projects Permitted Under Clean Water Act Section 401 with Mitigation Ratios of**

ID	Year	Region	Water (Location)	Applicant	Activities Conducted	401		404		CDFW		USFWS		Mitigation Plan		Total Impacts	Impacts		Total Required Mitigation	UCLA Discrepancy Study Results		
						Impact	Mitigation	Impact	Mitigation	Impact	Mitigation	Impact	Mitigation	Impact	Mitigation		Perm	Temp		Impacted	Required	Obtained
2219	2001	SR	Sacramento River (Chico)	M & T Ranch, Llano Seco Ranch, and City of Chico	Gravel bar excavation on the Sacramento River	0.100	2.000	0.022	0.022	NS	NS	2.000	2.000	2.000	2.000	2.022	2.000	0.022	2.022	2.022	2.022	2.022
2456	2001	SS	Miners Ravine Creek (Roseville)	City of Roseville	Sculpture Park for the Harding Boulevard Bikeway project - construction of a bikeway										0.150	0.150	0.000	0.150				
2974	1999	9	Rattlesnake Creek (Poway)	Eastvale Development, Barrarr American	Existing earthen berm ephemeral stream crossing was widened and paved to provide reliable access for a residential development	ND	ND	0.150	0.150	ND	ND	0.150	0.150	ND	ND	0.150	0.000	0.150	0.150	0.150	0.150	0.220
3472	1999	SF	Dog Creek (Clovis)	Clovis Unified School District	Dog Creek relocation - widening of Leonard Avenue required relocation of Dog Creek	0.390	0.330	0.390	0.390	ND	ND	NA	NA	0.390	0.390	0.390	0.000	0.390	0.390	0.390	0.390	0.390
4206	1992 (401) 1993 (404)	4	Piru Creek (Angeles National Forest)	Caltrans	Rehabilitation of south abutment of old Route 99 bridge, included creek diversion	1.700	NS	1.500	1.500	NS	NS	NA	NA	1.500	1.500	1.500	0.000	1.500	1.500	1.500	1.500	1.500
4580	1993 (401) 1994 (404)	8	Cajalco Canyon Creek	Western Municipal Water District, Corona	Emergency repair to a leak in a 27-inch diameter water main	NS	NS	NS	NS	ND	ND	NA	NA	ND	ND	0.600	0.000	0.600	0.600	0.600	0.600	0.600
5217	1994 (401 & 404)	3	San Roque Creek (Santa Barbara)	Penfield & Smith, Santa Barbara	Hitchcock Ranch Construction Project - diversion of potential 100-year flood flows in San Roque Creek away from a residential development. Excavation of the channel bottom and construction of multiple project components	1.000	1.000	NS	NS	NS	1.000	NA	NA	ND	ND	1.500	0.000	1.500	1.500	1.500	1.500	1.500
5747	1995 (401 & 404)	8		March Air Force Base	Landfill Stabilization	1.000	1.000	0.010	NS	1.000	1.000	NA	NA	ND	ND	0.300	0.000	0.300	0.600	0.300	0.600	0.690
6280	1995 (401) 1996 (404)	4		Ventura County Watershed Protection District, Ojai	McDonald Canyon Detention Basin, construction of an earthen debris dam, grouted rock rip rap barrier, and diversion channel	0.200	0.100	0.200	0.200	0.190	0.200	NA	NA	0.090	0.100	0.190	0.090	0.100	0.190	0.190	0.200	0.190
6389	1995 (401 & 404)	4	Arroyo Las Posas	County of Ventura Public Works Agency	Flood control improvements to a stretch of Arroyo Las Posas to reduce sedimentation in Lower Calleguas Creek and Mugu Lagoon	12.900	6.100	NS	NS	7.100	7.100	NA	NA	12.900	6.100	12.900	7.100	5.800	2.400	12.900	6.100	2.400
7059	1997 (401) 1999 (404)	3	Los Berros Creek (San Luis Obispo)	San Luis Obispo County, Nipomo	Bridge replacement over Los Berros Road Creek - bridge replacement and stabilization of downstream slope of small stream canyon	0.000	0.000	NS	NS	ND	ND	0.100	0.100	0.520	0.520	0.100		0.100	0.100	0.100	0.100	0.100
7497	1997	8	San Diego Creek (Irvine)	Irvine Ranch Water District	Reconfiguration of 12 duck ponds into five larger habitat ponds	14.600	14.600	NS	NS	ND	ND	ND	ND	NS	16.800	14.600	14.600	0.000	14.600	14.600	14.600	14.600

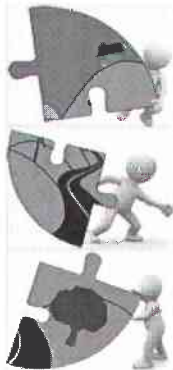
ID	Year	Region	Water (Location)	Applicant	Activities Conducted	401		404		CDFW		USFWS		Mitigation Plan		Total Impacts	Impacts		Total Required Mitigation	UCLA Discrepancy Study Results			
						Impact	Mitigation	Impact	Mitigation	Impact	Mitigation	Impact	Mitigation	Impact	Mitigation		Perm	Temp		Impacted	Required	Obtained	
8587	1998	8	Unnamed Isolated Wetland Non-Waters of the U.S. (Fullerton)	Cal Pac Remediation Company, Fullerton	13 Grade stabilizers and rock energy dissipaters were constructed downstream of 164-acre residential development							NA	NA			0.100	0.100	0.000	0.100				
8677	1998	8	Santiago Creek	Caltrans, Orange and Anaheim	State Route 55 and Chapman Avenue Bridge Widening - south bank of Santiago Creek excavated to minimize backwater influences and disruption of flood flows. Concrete block mat installed in the excavated area.	5.300	1.250	ND	ND	ND	ND	ND	ND	ND	ND	5.300	2.500	2.800	1.250	5.300	1.250	1.250	
8793	1998	4	Castaic Creek, unnamed tributary	Larwin Company, Val Verde	Debris basin maintenance - removal of accumulated sediment and debris from a debris basin to maintain its flood control capacity	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	2.270	2.270	0.000	1.400	2.270	1.400	1.400	
9392	1998	4	Matilija Creek (Los Padres National Forest)	Caltrans District 7, Wheeler Gorge	Replacement of old steel/wood combo bridge	0.350	0.350	ND	ND	ND	ND	NA	NA	ND	ND	0.350	0.110	0.240	0.350	0.350	0.350	0.320	
9404	1997	8	Flood Control Facilities Maintenance (Corona)	City of Corona Public Works Department	Operation and maintenance of existing flood-control and recreational facilities on USACE leased land. Maintain three channels and a water line crossing on City-owned land	12.950	12.950	11.940	11.940	ND	ND	11.940	11.940	11.940	11.940	11.940	11.940	0.000	11.940	11.940	11.940	11.940	11.940
10274	2000	5S	Georgiana Slough (Isleton)	Debbie Cummings	Construction of recreational dock and access											0.270	0.270	0.000	0.270				
11208	2002	5S	Folsom Lake, Weber Creek, Slate Creek Tributary, Unnamed (Shingle Springs, El Dorado County)	Shingle Springs Rancheria	Highway 50 Interchange Construction	0.088	0.021	0.088	0.088	ND	ND	NA	NA	NA	NA	0.088	0.088	0.000	0.088	0.088	0.088	0.088	

Source: An Evaluation of Compensatory Mitigation Projects Permitted Under Clean Water Act Section 401 by the California State Water Resources Control Board, 1991-2002, August 2007  
NA = Not Applicable, ND = Not Determinable, NS = Not Specified



# RIVERSIDE COUNTY (<http://planning.rctlma.org/>) PLANNING DEPARTMENT

- [General Plan & Zoning](http://planning.rctlma.org/General-Plan-Zoning) (<http://planning.rctlma.org/General-Plan-Zoning>)
- [Public Hearings](http://planning.rctlma.org/Public-Hearings) (<http://planning.rctlma.org/Public-Hearings>)
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- [General Information](http://planning.rctlma.org/General-Information) (<http://planning.rctlma.org/General-Information>)
- [Records](http://planning.rctlma.org/Records) (<http://planning.rctlma.org/Records>)
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(<http://planning.rctlma.org/>) ▶ [Planning Notices](#) ▶ [EIR No. 534 - San Gorgonio](#)

(</PublicHearings.aspx>) (<http://planning.rctlma.org/Home/Planning-Notices/EIR-No-534-San-Gorgonio>)

([https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC\\_Public](https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC_Public))

## ***EIR No. 534 - San Gorgonio Crossing***

### ***Planning Navigation***

Major Planning Efforts In Process

(<http://planning.rctlma.org/Home/Major-Planning-Efforts-In-Process>)

What's New

(<http://planning.rctlma.org/Home/Whats-New>)

Riverside County eRED Program

(<http://planning.rctlma.org/Home/Riverside-County-eRED-Program>)

August 19, 2015 Audio

(<http://planning.rctlma.org/Home/August-19-2015-Audio>)

NOC for EIR No. 542 for La Ventana Ranch TR36785

FEIR for EIR No. 537 and PP25422 Alessandro Commerce Centre

Notice for EIR No. 541 - Comment Period Open Until May 20, 2016

(<http://planning.rctlma.org/Home/Notice-for-EIR-No-541-Comment-Period-Open-Until-May-20-2016>)

Notice of Preparation for SP00394 Greentree Ranch

Planning Notices

Barker Logistics

(<http://planning.rctlma.org/Home/Planning-Notices/Barker-Logistics>)

EIR No. 534 - San Gorgonio

(<http://planning.rctlma.org/Home/Planning-Notices/EIR-No-534-San-Gorgonio>)

NOP for SP 396  
(<http://planning.rctlma.org/Home/Planning-Notices/NOP-for-SP-396>)

CUP180001PUP180001  
(<http://planning.rctlma.org/Home/Planning-Notices/CUP180001PUP180001>)

Ivey Palm SP  
(<http://planning.rctlma.org/Home/Planning-Notices/Ivey-Palm-SP>)

Gilman Springs Mine  
(<http://planning.rctlma.org/Home/Planning-Notices/Gilman-Springs-Mine>)

Trails at Corona Specific Plan  
(<http://planning.rctlma.org/Home/Planning-Notices/Trails-at-Corona-Specific-Plan>)

Desert Quartzite Solar Project EIR 544  
(<http://planning.rctlma.org/Home/Planning-Notices/Desert-Quartzite-Solar-Project-EIR-544>)

MND for CUP 180006  
(<http://planning.rctlma.org/Home/Planning-Notices/MND-for-CUP-180006>)

Vista Nuevo  
(<http://planning.rctlma.org/Home/Planning-Notices/Vista-Nuevo>)

Athos RE  
(<http://planning.rctlma.org/Home/Planning-Notices/Athos-RE>)

The Villages of Lakeview SP00342

NOC for EIR No. 534 - San Geronio

Notice for EIR No. 532 - Comment Period Open Until November 14, 2016  
(<http://planning.rctlma.org/Home/Planning-Notices/Notice-for-EIR-No-532-Comment-Period-Open-Until-November-14-2016>)

EIR for SP No. 385A1  
(<http://planning.rctlma.org/Home/Planning-Notices/EIR-for-SP-No-385A1>)

EIR No. 546 Knox Business Park  
(<http://planning.rctlma.org/Home/Planning-Notices/EIR-No-546-Knox-Business-Park>)

EIR for Toscana Village  
(<http://planning.rctlma.org/Home/Planning-Notices/EIR-for-Toscana-Village>)

Canterwood  
(<http://planning.rctlma.org/Home/Planning-Notices/Canterwood>)

Horsethief  
(<http://planning.rctlma.org/Home/Planning-Notices/Horsethief>)

Placentia  
(<http://planning.rctlma.org/Home/Planning-Notices/Placentia>)

STC  
(<http://planning.rctlma.org/Home/Planning-Notices/STC>)

StoneridgeSPA1EIR  
(<http://planning.rctlma.org/Home/Planning-Notices/StoneridgeSPA1EIR>)

EIR546\_RevProjDesc  
([http://planning.rctlma.org/Home/Planning-Notices/EIR546\\_RevProjDesc](http://planning.rctlma.org/Home/Planning-Notices/EIR546_RevProjDesc))

LEAPS  
(<http://planning.rctlma.org/Home/Planning-Notices/LEAPS>)

Oleander  
(<http://planning.rctlma.org/Home/Planning-Notices/Oleander>)

VOTE  
(<http://planning.rctlma.org/VOTE2020>)

CEQ190085  
(<http://planning.rctlma.org/Home/Planning-Notices/CEQ190085>)

VillaParkTrucking  
(<http://planning.rctlma.org/Home/Planning-Notices/VillaParkTrucking>)

CVHC  
(<http://planning.rctlma.org/Home/Planning-Notices/CVHC>)

Cannabis  
(<http://planning.rctlma.org/Cannabis3>)

## Final Supplemental Environmental Impact Report (EIR) No. 534

### Notice of Availability of a Supplemental Environmental Impact Report

A Final Supplemental Environmental Impact Report (Final Supplemental EIR) No. 534 (SCH No. 2014011009) for the San Gorgonio Crossing Project (PP25337, CZ07799, PM36564, and GPA01079) has been completed and is now available. The Final Supplemental EIR is a supplement to the Final EIR for this Project, certified by the Riverside County Board of Supervisors on October 24, 2017. The Final Supplemental EIR addresses comments submitted in response to the Draft Supplemental EIR during the comment period (December 16, 2019, to January 30, 2020).

The Final EIR and MMRP can be found by clicking [HERE](#) (/Portals/14/Postings/San Gorgonio Crossing/FEIR534S01\_MMRP.pdf)

The Draft EIR can be found by clicking [HERE](#)

NOA of Final SEIR No. 534 (/Portals/14/Postings/San Gorgonio Crossing/Final/NOA\_SanGorgonio.pdf)

### Project Information

After the Final EIR for this Project was certified, two entities filed legal actions challenging the EIR, which were consolidated and heard by the Riverside Superior Court. On February 7, 2019, in the case titled Cherry Valley Pass Acres and Neighbors and Environmental Planning Group v. the County of Riverside, the Court ordered the Respondent County of Riverside (County) to (1) address in its Final EIR the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) include in the Final EIR a further analysis of the Project's projected transportation energy use requirements and, in particular, its overall use of efficient transportation alternatives. The Court further ordered that (1) the remainder of the Final EIR certified on October 24, 2017, is in full compliance with CEQA and remains certified, and (2) the project approvals are valid and shall remain in place.

In compliance with the Court order, the County prepared a Draft Supplemental EIR. On December 16, 2019, an NOA was made available and the Draft Supplemental EIR was published by the County. The Draft Supplemental EIR (1) analyzed the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) provided further analysis of the Project's projected transportation energy use requirements and, in particular, its overall use of efficient transportation alternatives to ensure that the Projects' energy use is not inefficient, wasteful, or unnecessary in accordance with Appendix F. There were no other changes to the project or environmental circumstances that required additional environmental review under CEQA (Public Resources Code Section 21000, et seq.), State CEQA Guidelines (California Code of Regulations [CCR] Title 14 § 15000, et seq.), or the County's rules and regulations. Comments on the Draft Supplemental EIR were accepted from December 16, 2019, to January 20, 2020; comments related to the two issue areas outlined above are addressed in the Final Supplemental EIR.

The Board of Supervisors of the County of Riverside will consider certifying the Final Supplemental EIR at a public hearing in regular session at the County Administrative Center Board Chambers, 4080 Lemon Street, 1st Floor, Riverside, CA, on Tuesday, March 17, 2020.

**PROJECT LOCATION:** The Project is located in Township 2 South, Range 1 West, Section 30, along the north side of Cherry Valley Boulevard and east of the Interstate 10 Freeway (I-10), between the cities of Calimesa and Beaumont, in the unincorporated area of Riverside County, California.

### ISSUES ADDRESSED IN THE DRAFT SUPPLEMENTAL EIR:

As described above, the Supplemental EIR (1) analyzes the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) provides further analysis of the Project's projected transportation energy use requirements and, in particular,

its overall use of efficient transportation alternatives to ensure that the Projects' energy use is not inefficient, wasteful, or unnecessary in accordance with Appendix F. Comments on the Draft Supplemental EIR were accepted between December 16, 2019, and January 20, 2020. These comments were addressed in the Final Supplemental EIR. There were no revisions to the Draft Supplemental EIR that were requested or that were necessary as a result of public comments.

**LOCATION OF PROJECT DOCUMENTS:** Copies of the Final Supplemental EIR and all pertinent and related project documents and technical appendices are available online at: <http://Planning.rctlma.org> under "Ongoing Projects"

The Final Supplemental EIR will also be available at the following locations:

Riverside County Planning Department 4080 Lemon Street, 12th Floor Riverside, CA 92502-1409	Calimesa Public Library 974 Calimesa Boulevard Calimesa CA 92320	Beaumont Public Library 125 E 8th Street Beaumont CA 92223
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#### Contact Information

Brett Dawson, Project Planner  
Riverside County Planning Department  
4080 Lemon St., 12th Floor  
Riverside, CA 92501  
(951) 955-0972

[BDawson@rivco.org](mailto:BDawson@rivco.org) (<mailto:bdawson@rivco.org>)

#### Final Supplemental EIR Documents (PDF)

Final EIR No. 534 ([/Portals/14/Postings/San Gorgonio Crossing/Final/FinalSEIR\\_SanGorgonio.pdf](/Portals/14/Postings/San_Gorgonio_Crossing/Final/FinalSEIR_SanGorgonio.pdf))  
Mitigation Monitoring and Reporting Program (MMRP) for Final EIR No. 534 ([/Portals/14/Postings/San Gorgonio Crossing/Final/MMRP\\_SanGorgonio.pdf](/Portals/14/Postings/San_Gorgonio_Crossing/Final/MMRP_SanGorgonio.pdf))

#### Draft Supplemental Environmental Impact Report (EIR) No. 534

##### Notice of Availability of a Draft Supplemental Environmental Impact Report

A DRAFT SUPPLEMENTAL ENVIRONMENTAL IMPACT REPORT (Draft Supplemental EIR) No. 534 for the San Gorgonio Crossing Project (PP25337, CZ07799, PM36564, and GPA01079) has been completed and is now available for public review. The Riverside County Board of Supervisors originally certified the Final EIR for this Project on October 24, 2017. The original Final EIR can be found by clicking [here](#).

**NOA of SEIR for San Gorgonio** ([/Portals/14/Postings/San Gorgonio Crossing/NOA\\_SEIR.pdf](/Portals/14/Postings/San_Gorgonio_Crossing/NOA_SEIR.pdf))

#### Project Information

After the Final EIR for this Project was certified, two entities filed legal actions challenging the EIR, which were consolidated and heard by the Riverside Superior Court. On February 7, 2019, in the case titled *Cherry Valley Pass Acres and Neighbors and Environmental Planning Group v. the County of Riverside*, the Court ordered the Respondent County of Riverside (County) to (1) address in its Final EIR the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) include in the Final EIR a further analysis of the Project's projected transportation energy use requirements and, in particular, its overall use of efficient transportation alternatives.

The Court further ordered that (1) the remainder of the Final EIR certified on October 24, 2017, is in full compliance with CEQA and remains certified, and (2) the project approvals are valid and shall remain in place. Therefore, the County has prepared a Draft Supplemental EIR that (1) analyzes the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) provides further analysis of the Project's projected transportation energy use requirements and, in particular, its overall use of efficient transportation alternatives to ensure that the Projects' energy use is not inefficient, wasteful, or unnecessary in accordance with Appendix F. There are no other changes to the project or environmental circumstances that require additional environmental review under CEQA (Public Resources Code Section 21000, et seq.), State CEQA Guidelines (California Code of Regulations [CCR] Title 14 § 15000, et seq.), or the County's rules and regulations.

The Draft Supplemental EIR contains only the information necessary to make the previous Final EIR adequate for the San Gorgonio Project. This meets the requirements for supplemental environmental analysis under Section 15163 of the CEQA Guidelines.

**Comments should be limited to only the two issue areas outlined above that are being reviewed within this Draft Supplemental EIR.**

**PROJECT LOCATION:** The Project is located in Township 2 South, Range 1 West, Section 30, along the north side of Cherry Valley Boulevard and east of the Interstate 10 Freeway (I-10), between the cities of Calimesa and Beaumont, in the unincorporated area of Riverside County, California.

**ISSUES ADDRESSED IN THE DRAFT SUPPLEMENTAL EIR:**

As described above, the Supplemental EIR (1) analyzes the South Coast Air Quality Management District (SCAQMD) recommendation to maximize the use of solar panels and provide an explanation as to why the mitigation measure was not adopted, and (2) provides further analysis of the Project's projected transportation energy use requirements and, in particular, its overall use of efficient transportation alternatives to ensure that the Projects' energy use is not inefficient, wasteful, or unnecessary in accordance with Appendix F. There are no other changes to the project or environmental circumstances that require additional environmental review under CEQA (Public Resources Code Section 21000, et seq.), State CEQA Guidelines (California Code of Regulations [CCR] Title 14 § 15000, et seq.), or the County's rules and regulations.

**LOCATION OF PROJECT DOCUMENTS:** Copies of the Draft Supplemental EIR and related project documents and technical appendices are available below. The Draft Supplemental EIR will also be available at the following locations:

Riverside County Planning Department  
4080 Lemon Street, 12th Floor Riverside, CA 92502-1409

Calimesa Public Library  
974 Calimesa Boulevard Calimesa CA 92320

Beaumont Public Library  
125 E 8th Street Beaumont CA 92223

**Comment Period**

Comments on the adequacy of the analysis included in the Draft Supplemental EIR may be made in writing, indicating the section(s) of concern. The project name and number should be noted on all correspondence and the comment should indicate if you would like to be notified of public hearings. Please provide your written response to the Riverside County Planning Department's address shown below by 5:00 pm, January 30, 2020.

**Comments should be limited to only the two issue areas outlined above that are being reviewed within this Draft Supplemental EIR.**

**Contact Information**

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4080 Lemon St., 12th Floor  
Riverside, CA 92501  
(951) 955-0972

[BDawson@rivco.org](mailto:BDawson@rivco.org) (mailto:bdawson@rivco.org)

**Draft Supplemental EIR Documents (PDF)**

[San Gorgonio Draft SEIR \(/Portals/14/Postings/San Gorgonio Crossing/San\\_Gorgonio\\_Draft\\_SEIR.pdf\)](#)

[San Gorgonio Draft SEIR Appendices \(/Portals/14/Postings/San Gorgonio Crossing/Draft\\_SEIR\\_Appendices.pdf\)](#)

**Environmental Impact Report (EIR) No. 534**

**Notice**

San Gorgonio Crossings, Final Environmental Impact Report No. 534, General Plan Amendment No. 1079, Change of Zone No. 7799, Plot Plan No. 25337, Parcel Map No. 36564 (State Clearinghouse Number 2014011009).

**Project Information**

**PROJECT SUMMARY:** The County of Riverside Planning Department will serve as the Lead Agency under the California Environmental Quality Act (CEQA) and will coordinate the public review of a Recirculated Draft Environmental Impact Report (RDEIR) that will evaluate the potential significant environmental impacts that may result from the proposed project. TSG Cherry Valley, LP (project proponent) is proposing to process the above referenced entitlement actions through Riverside County in order to develop PP 25337 which is an industrial distribution facility consisting of two industrial buildings totaling

1,823,760 square feet, with 306 bay doors 30,000 square feet of office space, located on 229 gross acres, of which approximately 140.23 acres would be included within the developed portion of the project, and 84.8 acres would remain as natural open space (approximately 36 percent of the project site).. The proposed GPA would revise the land use designation from Community Development: Very Low Density Residential (CD:VLDR)(1 Acre Minimum) and Rural: Rural Mountainous (R:RM)(10 Acre Minimum) to Community Development: Light Industrial (CD:LI)(0.25 – 0.60 Floor Area Ratio) Community Development: Public Facility (CD:PF) and Open Space: Open Space Recreation (OS:OS-R) and Rural: Rural Mountainous (R:RM) (10 Acre Minimum). The Change of Zone proposes to change the existing zoning from Controlled Development Areas (W-2) to Industrial Park (I-P). The Parcel Map proposes to subdivide 229 gross acres into four parcels. The property is located northerly of Cherry Valley Boulevard, easterly of Interstate 10 and westerly of Vineland Street, within the Cherry Valley Policy Area, Cherry Valley Gateway Policy Area and the Pass Area Plan. APNs 407-220-004, 007, 008, 009, 014, 016, 017, and APNs 407-270-012,407-270-013 are not part of the project, but are part of improvements related to the project.

**PROJECT LOCATION:** The property is located northerly of Cherry Valley Boulevard, easterly of Interstate 10 and westerly of Vineland Street, within the Cherry Valley Policy Area, Cherry Valley Gateway Policy Area and the Pass Area Plan.

#### Contact Information

Brett Dawson, Project Planner  
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4080 Lemon St., 12th Floor  
Riverside, CA 92501  
(951) 955-0972

BDawson@rivco.org (mailto:bdawson@rivco.org)

#### Recirculated Draft EIR Documents (PDF)

EIR Title Page (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec00-01 Title Page.pdf?ver=2017-09-19-083916-957)

EIR Table of Contents (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec00-02 TOC.pdf?ver=2017-09-19-083917-177)

EIR Acronyms (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec00-03 Acronyms.pdf?ver=2017-09-19-083917-377)

EIR Executive Summary (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec00-ES Executive Summary.pdf?ver=2017-09-19-083917-567)

Section 1.00 - Introduction (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec01-00 Introduction.pdf?ver=2017-09-19-083917-783)

Section 2.00 - Project Description (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec02-00 Project Description.pdf?ver=2017-09-19-083918-033)

Section 3.00 - Environmental Impact Analysis (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-00 Env Impact Analysis.pdf?ver=2017-09-19-083918-237)

Section 3.01 - Aesthetics (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-01 Aesthetics.pdf?ver=2017-09-19-083918-627)

Section 3.02 - Agriculture (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-02 Agriculture.pdf?ver=2017-09-19-083918-970)

Section 3.03 - Air Quality (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-03 Air Quality.pdf?ver=2017-09-19-083919-280)

Section 3.04 - Biological Resources (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-04 Bio Resources.pdf?ver=2017-09-19-083919-593)

Section 3.05 - Cultural Resources (**Confidential**) - **Please contact project planner at (951) 955-0972.**

Section 3.06 - Geology and Soils (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-06 Geo.pdf?ver=2017-09-19-084101-883)

Section 3.07 - Greenhouse Gas Emissions (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-07 GHG.pdf?ver=2017-09-19-084102-087)

Section 3.08 - Hazards and Hazardous Materials (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-08 Hazmat.pdf?ver=2017-09-19-084102-383)

Section 3.09 - Hydrology and Water Quality (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-09 Hydro Water Quality.pdf?ver=2017-09-19-084102-617)

Section 3.10 - Land Use and Planning (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-10 Land Use.pdf?ver=2017-09-19-084102-850)

Section 3.11 - Mineral Resources (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-11 Mineral.pdf?ver=2017-09-19-084103-067)

Section 3.12 - Noise (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-12 Noise.pdf?ver=2017-09-19-084103-287)

Section 3.13 - Population and Housing (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-13 Pop and Housing.pdf?ver=2017-09-19-084103-490)

Section 3.14 - Public Services (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-14 Public Services.pdf?ver=2017-09-19-084103-660)

Section 3.15 - Recreation (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-15 Recreation.pdf?ver=2017-09-19-084240-083)



Section 3.16 - Transportation and Traffic (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-16 Transportation.pdf?ver=2017-09-19-084240-350)

Section 3.17 - Utilities and Service Systems (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec03-17 Utilities.pdf?ver=2017-09-19-084240-617)

Section 4.00 - Cumulative Impact Analysis (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec04-00 Cumulative.pdf?ver=2017-09-19-084240-833)

Section 5.00 - Other CEQA Considerations (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec05-00 Other CEQA.pdf?ver=2017-09-19-084241-053)

Section 6.00 - Alternatives to the Proposed Project (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec06-00 Alternatives.pdf?ver=2017-09-19-084241-287)

Section 7.00 - Persons and Organizations Consulted (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec07-00 Persons.pdf?ver=2017-09-19-084241-520)

Section 8.00 - List of Preparers (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec08-00 List of Preparers.pdf?ver=2017-09-19-084241-707)

Section 9.00 - References (/Portals/14/Postings/San Gorgonio Crossing/34260005 Sec09-00 References.pdf?ver=2017-09-19-084241-910)

#### Recirculated Draft EIR Technical Appendices

Appendix Title Page (/Portals/14/Postings/San Gorgonio Crossing/App 1 - Appendix Title Page.pdf?ver=2017-09-19-084957-493)

Appendix Table of Contents (/Portals/14/Postings/San Gorgonio Crossing/App 2 - Appendix TOC.pdf?ver=2017-09-19-084959-710)

Appendix A - Notice of Preparation (/Portals/14/Postings/San Gorgonio Crossing/App A - NOP and Scoping ASMBLD.pdf?ver=2017-09-19-085019-910)

Appendix B - Air Quality and Greenhouse Gases (/Portals/14/Postings/San Gorgonio Crossing/App B - AQ-GHG ASMBLD.pdf?ver=2017-09-19-085007-477)

Appendix C - Biological Resources (/Portals/14/Postings/San Gorgonio Crossing/App C - Biological Resources ASMBLD.pdf?ver=2017-09-19-085010-490)

Appendix D - Cultural Resources (**Confidential**) - **Please contact project planner at (951) 955-0972.**

Appendix E - Geology and Soils (/Portals/14/Postings/San Gorgonio Crossing/App E - Geology and Soils ASMBLD.pdf?ver=2017-09-19-085027-307)

Appendix F - Phase I Environmental Site Assessment (/Portals/14/Postings/San Gorgonio Crossing/App F - Phase I ESA ASMBLD.pdf?ver=2017-09-19-085033-110)

Appendix G - Hydrology and Water Quality (/Portals/14/Postings/San Gorgonio Crossing/App G - Hydro and Water Quality ASMBLD.pdf?ver=2017-09-19-085047-727)

Appendix H - Noise (/Portals/14/Postings/San Gorgonio Crossing/App H - Noise ASMBLD.pdf?ver=2017-09-19-085024-887)

Appendix I - Traffic Study (/Portals/14/Postings/San Gorgonio Crossing/App I - Traffic Study ASMBLD.pdf?ver=2017-09-19-085030-677)

Appendix J - Fiscal Impact Analysis (/Portals/14/Postings/San Gorgonio Crossing/App J - Fiscal and Economic Analysis ASMBLD.pdf?ver=2017-09-19-084958-650)

Appendix K - Comparison of 2003 and 2015 General Plans (/Portals/14/Postings/San Gorgonio Crossing/App K - Comparison of 2003 and 2015 GPs ASMBLD.pdf?ver=2017-09-19-084956-933)

Economic Impact (/Portals/14/Postings/San Gorgonio Crossing/Economics Impact - Shopoff 2017 v. 2.pdf?ver=2017-09-28-072432-037)

#### Final EIR

Final EIR Responses to Comments (/Portals/14/Postings/San Gorgonio Crossing/Final EIR Responses to Comments.pdf?ver=2017-09-19-085028-490)

#### Other Documents:

October 17, 2017 Comment Memo (/Portals/14/Postings/San Gorgonio Crossing/Oct 17 Comment memo.pdf?ver=2017-10-25-114036-863)

October 17, 2017 Memo (/LinkClick.aspx?fileticket=X2E4dnyhYII%3d&portalid=0)

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