APPENDIX
10.4 Habitat Assessment

This page intentionally left blank

CLEAN WATER FACTORY PROJECT

CITY OF SAN BERNARDINO, SAN BERNARDINO COUNTY, CALIFORNIA

Habitat Assessment

Prepared For:

San Bernardino Municipal Water Department
397 Chandler Place
San Bernardino, California 92408
Contact: *John Claus*

Prepared By:

Michael Baker International
3536 Concours Street, Suite 100
Ontario, California 91764
Contact: *Thomas J. McGill, Ph.D.*
909.974.4907

October 2015

JN: 131284

CLEAN WATER FACTORY PROJECT

SAN BERNARDINO COUNTY, CALIFORNIA

Habitat Assessment

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Ryan Winkleman
Biologist
Natural Resources

Thomas J. McGill, Ph.D.
Vice President
Natural Resources

October 2015

Executive Summary

The San Bernardino Municipal Water Department (SBMWD) proposes to increase its water supply by recharging the Bunker Hill Groundwater Basin with treated wastewater. At present, the SBMWD acquires all of its public water from the Bunker Hill Groundwater Basin, which is currently experiencing gradual depletion of its water supply. Under the proposed project the San Bernardino Water Reclamation Plant would tertiarially treat wastewater to a quality approved for recharge. The treated wastewater would then be transported via pipeline to the Waterman Spreading Grounds and East Twin Creek Spreading Grounds, where the water would be used to recharge the groundwater basin. The treated wastewater may also be diverted west through a series of pipelines to recharge an existing IEUA-owned Chino Basin or east to the East Valley Water District-owned Redlands Recharge Basins. A supplemental habitat assessment pertaining to the Redlands Recharge Basins is provided under separate cover. The Chino Basin option would utilize existing facilities in built-out environments and therefore is not analyzed as a part of the habitat assessment.

In June 2014 biologists from Michael Baker International conducted a habitat assessment of the upland portions of the project site, where infrastructure to support the project could be installed. Portions of the project site are located adjacent or in close proximity to designated Critical Habitat for San Bernardino kangaroo rat (*Dipodomys merriami parvus*), southwestern willow flycatcher (*Empidonax traillii extimus*), Santa Ana sucker (*Catostomus santaanae*), and thread-leaved brodiaea (*Brodiaea filifolia*). A separate low flow/sediment transport study addresses the indirect operational effects on the Santa Ana River and its associated riparian habitats from the proposed reduction in wastewater discharge into the river at the Rapid Infiltration and Extraction (RIX) facility.

Focused surveys were conducted in summer 2015 for least Bell's vireo (*Vireo bellii pusillus*), San Bernardino kangaroo rat, and rare plant species within the Waterman Spreading Grounds. One male least Bell's vireo was found on a single day during the respective surveys. San Bernardino kangaroo rat and rare plant surveys were negative.

While a formal jurisdictional delineation has not been conducted, the project site contains several water bodies—East Twin Creek, Warm Creek, City Creek, and the Santa Ana River—that are known to be Waters of the State and/or Waters of the U.S. under the regulatory authority of the U.S. Army Corps of Engineers (corps), Regional Water Quality Control Board (Regional Board), and/or California Department of Fish and Wildlife (CDFW). The project is currently designed to avoid all direct impacts to these areas, although indirect operational impacts could potentially occur. If project design changes and direct impacts are determined for any of these water bodies, the project applicant would be required to obtain a Corps Clean Water Act (CWA) Section 404 Permit, Regional Board CWA Section 401 Water Quality Certification, and CDFW Section 1602

Streambed Alteration Agreement prior to construction within these areas. Additionally, the federal 404 permits would trigger Section 7 Consultation due to potential indirect impacts to federally-listed species and their Critical Habitat potentially occurring in the Waterman Spreading Grounds, East Twin Creek Spreading Grounds, and in the Santa Ana River downstream of the RIX facility.

Table of Contents

Section 1 Introduction 1
1.1 Project Location 1
1.2 Project Background 2
1.3 Project Description 7
Section 2 Regulatory Background 9
2.1 Federal Regulations 9
2.2 State Regulations 11
Section 3 Methodology 13
3.1 Literature Review 13
3.2 Habitat Assessment and Field Investigation 13
3.3 Soil Series Assessment 14
3.4 Plant Communities 14
3.5 Plants 15
3.6 Wildlife 15
3.7 Jurisdictional Areas 15
Section 4 Existing Conditions 16
4.1 Local Climate 16
4.2 Topography and Soils 16
4.3 Surrounding Land Uses 16
Section 5 Discussion 19
5.1 Site Conditions 19
5.2 Vegetation 19
5.2.1 Riversidean Sage Scrub 19
5.2.2 Southern Willow Scrub 20
5.2.3 Mulefat Scrub 20
5.2.4 Non-native Grassland 20
5.2.5 Eucalyptus Stand 20
5.2.6 Pond 22

5.2.7 Disturbed 22
5.2.8 Developed 22
5.2.9 Concrete Channel 22
5.2.10 Unvegetated Channel 22
5.3 Wildlife 22
5.3.1 Amphibians 23
5.3.2 Reptiles 23
5.3.3 Avian 23
5.3.4 Mammals 23
5.3.5 Fish 24
5.4 Nesting Birds 24
5.5 Migratory Corridors and Linkages 24
5.6 Jurisdictional Areas 24
5.7 Sensitive Biological Resources 25
5.7.1 Sensitive Plants 25
5.7.2 Sensitive Wildlife 26
5.7.2.1 Amphibian and Reptile Species 26
5.7.2.2 Avian Species 28
5.7.2.3 Mammalian Species 29
5.7.3 Sensitive Habitats 31
5.7.4 Critical Habitat 31
Section 6 Discussion of Impacts and Mitigation 34
6.1 Listed Plant Species 34
6.2 Special-Status Plant Species 34
6.3 Listed Wildlife Species 36
6.3.1 Species that will be Directly Affected 36
6.3.1.1 San Bernardino Kangaroo Rat 36
6.3.1.2 Least Bell's Vireo 37
6.3.2 Species that will be Indirectly Affected 39
6.3.2.1 San Bernardino Kangaroo Rat 39
6.3.2.2 Santa Ana Sucker 40

6.3.2.3 Arroyo Chub 41
6.4 Special-Status Wildlife Species 42
6.5 Riparian Habitat and Wetlands 44
6.6 Wildlife Corridors 46
6.7 Local Policies and Ordinances 47
6.8 Local, Regional, and State Plans 47
Section 7 Conclusion and Recommendations 48
Section 8 References 50

EXHIBITS

Exhibit 1: Regional Vicinity 3
Exhibit 2: Site Vicinity 4
Exhibit 3: Project Site 5
Exhibit 4: Soils 18
Exhibit 5: Vegetation 21
Exhibit 6: Critical Habitat 32

TABLES

Table 1: Potential RIX Discharge Phased Reduction Scenarios 8

APPENDIX

Appendix A Sensitive Habitats and Potentially Occurring Sensitive Plant and Wildlife Species
Appendix B Site Photographs
Appendix C Flora and Fauna Compendium

LIST OF ACRONYMS

AMP	Adaptive Management Program
CCR	California Code of Regulation
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
cfs	cubic feet per second
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
Corps	United States Army Corp of Engineers
CWA	Clean Water Act
EIR	Environmental Impact Report
ESA	Endangered Species Act
GEI	GEI Consultants, Inc.
GIS	Geographic Information System
LBV	Least Bell's Vireo
MBTA	Migratory Bird Treaty Act
mgd	million gallons per day
MPN	Most Probable Number
NRCS	Natural Resources Conservation Service
PCE	Primary Constituent Element
Regional Board	Regional Water Quality Control Board
RIX	Rapid Infiltration and Extraction
SAR	Santa Ana River
SASU	Santa Ana Sucker
SBCFCD	San Bernardino County Flood Control District
SBKR	San Bernardino Kangaroo Rat
SBMWD	San Bernardino Municipal Water District
SBWRP	San Bernardino Water Reclamation Plant
SWP	State Water Project
SWRCB	State Water Resources Control Board
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WEAP	Worker Environmental Awareness Program

Section 1 Introduction

This report contains the findings of Michael Baker International's (Michael Baker) Habitat Assessment for the Clean Water Factory Project (project) located in the City of San Bernardino in San Bernardino County, California. The initial habitat assessment of upland habitat was conducted by Michael Baker biologists Travis J. McGill and Ryan Winkleman on June 19, June 25, and July 3, 2014 to identify sensitive habitats and/or species potentially occurring within the boundaries, or adjacent to, the project site that could pose a constraint to development. A subsequent assessment was done of the Waterman Spreading Grounds and the East Twin Creek Spreading Grounds in early August 2014.

Special attention was given to the suitability of the upland habitat within the project boundary to support San Bernardino kangaroo rat (*Dipodomys merriami parvus*) (SBKR), a federally endangered species and California species of special concern; slender-horned spineflower (*Dodecahema leptoceras*), a federally and State endangered species; Santa Ana River woollystar (*Eriastrum densifolium ssp. sanctorum*), a federally and State endangered species; coastal California gnatcatcher (*Polioptila californica californica*), a federally threatened species and California species of special concern; and least Bell's vireo (*Vireo bellii pusillus*) (LBV), a federally and State endangered species.

Focused surveys for LBV, SBKR, and rare plant species including thread-leaved brodiaea (*Brodiaea filifolia*), Plummer's mariposa lily (*Calochortus plummerae*), smooth tarplant (*Centromadia pungens ssp. laevis*), Parry's spineflower (*Chorizanthe parryi var. parryi*), mesa horkelia (*Horkelia cuneate var. puberula*), California satintail (*Imperata brevifolia*), and Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*) were conducted within the Waterman Spreading Grounds from June to August 2015. Sensitive plant surveys were not conducted elsewhere within the project site due to lack of any suitable habitat.

1.1 PROJECT LOCATION

The project is located within the City of San Bernardino approximately 60 miles east of the City of Los Angeles in the upper Santa Ana River (SAR) Valley Watershed. New facilities required for this project would be constructed within the SBMWD service area, above the Bunker Hill Basin. The project is generally located east of Interstate 215 and north of Interstate 10 in the City of San Bernardino, San Bernardino County, California (Exhibit 1, *Regional Vicinity*). The project site is located within the San Bernardino North and San Bernardino South quadrangles of the United States Geological Survey's (USGS) 7.5-minute topographic map series in an un-sectioned area of Townships 1 north and 1 south, Range 4 west (Exhibit 2, *Site Vicinity*). Specifically, the project site is roughly bounded by South E Street to the west, West Hospitality Lane to the south, North

Tippecanoe Avenue to the east, and the San Bernardino National Forest to the north (Exhibit 3, *Project Site*).

The project area includes the City's existing San Bernardino Water Reclamation Plant (SBWRP) located just north of the confluence of East Twin Creek and the SAR at 399 Chandler Place, San Bernardino, California, as well as the proposed alignments of distribution pipelines which would extend from the SBWRP along existing street and/or flood control channel rights-of-way within the City. These pipelines extend to the Waterman Basin and East Twin Creek Spreading Ground at the foothills of the San Bernardino Mountains.

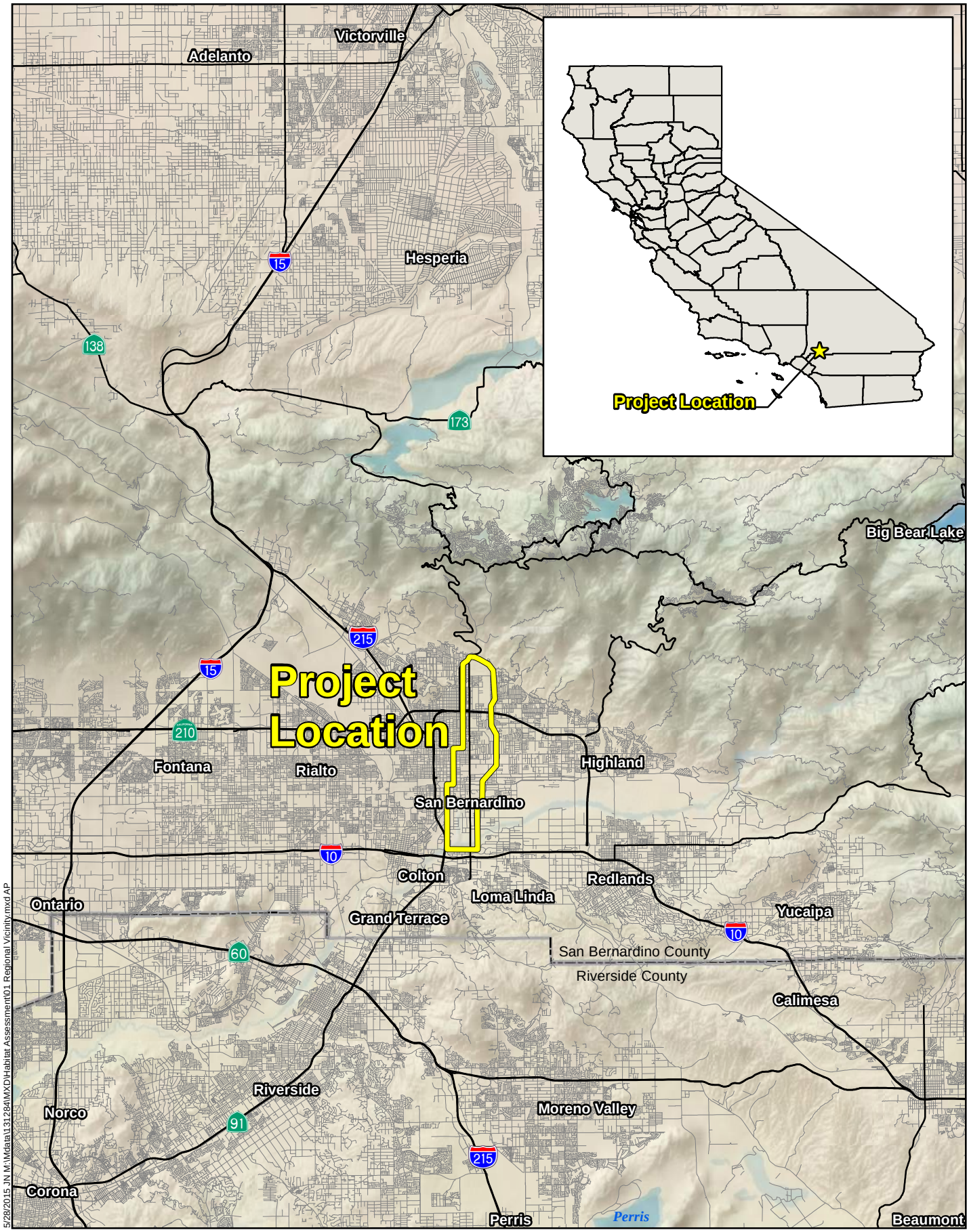
1.2 PROJECT BACKGROUND

The City of San Bernardino Municipal Water District (SBMWD) provides water supply and reclamation to its service area, which primarily overlays the Bunker Hill Groundwater Basin (Bunker Hill Basin), particularly the Bunker Hill Basin A Management Zone[1]. SBMWD relies wholly on groundwater from the Bunker Hill Basin to meet its service area water demand. Exhibit 1, SBMWD Service Area and Groundwater Basins, shows the location of each of these features. With over 55 production wells, four groundwater treatment plants, and over 650 miles of water supply pipelines, SBMWD has invested in maintaining and improving the water supply in the Bunker Hill Basin.

Due to the extended drought in California, limitations on State Water Project (SWP) supplies, the current groundwater depletion of the Bunker Hill Basin, and compliance with SBX-7,[2] SBMWD faces the challenge of satisfying its anticipated water demands through innovative solutions, independent of traditional imported water supplies. To meet this challenge, SBMWD commissioned a Recycled Water Planning Investigation Report (PIR) to assess the feasibility of using recycled water to augment its water supply.

SBMWD owns and operates the San Bernardino Water Reclamation Plant (SBWRP). The SBMWD and the City of Colton are members of a Joint Powers Agency that own and operate the Rapid Infiltration and Extraction (RIX) Facility. Currently, the SBWRP treats approximately 22 million gallons per day (mgd) of raw wastewater from the City of San Bernardino, the City of

[1] The Bunker Hill Basin is divided into water quality management zones and the Waterman Spreading Grounds and East Twin Creek Spreading Grounds are located in Bunker Hill Basin A Management Zone. Identification of this Management Zone is provided to show future water quality comparisons with objectives established by the Regional Water Quality Control Board.
[2] SBX-7 requires urban water retailers to reduce per capita water demands by 10 percent by 2015 and by 20 percent by 2020, with that reduction measured against a specified per capita baseline.



5/29/2015 JN M:\Mdata\131294\MXD\Habitat Assessment\01 Regional Vicinity.mxd AP

Michael Baker INTERNATIONAL

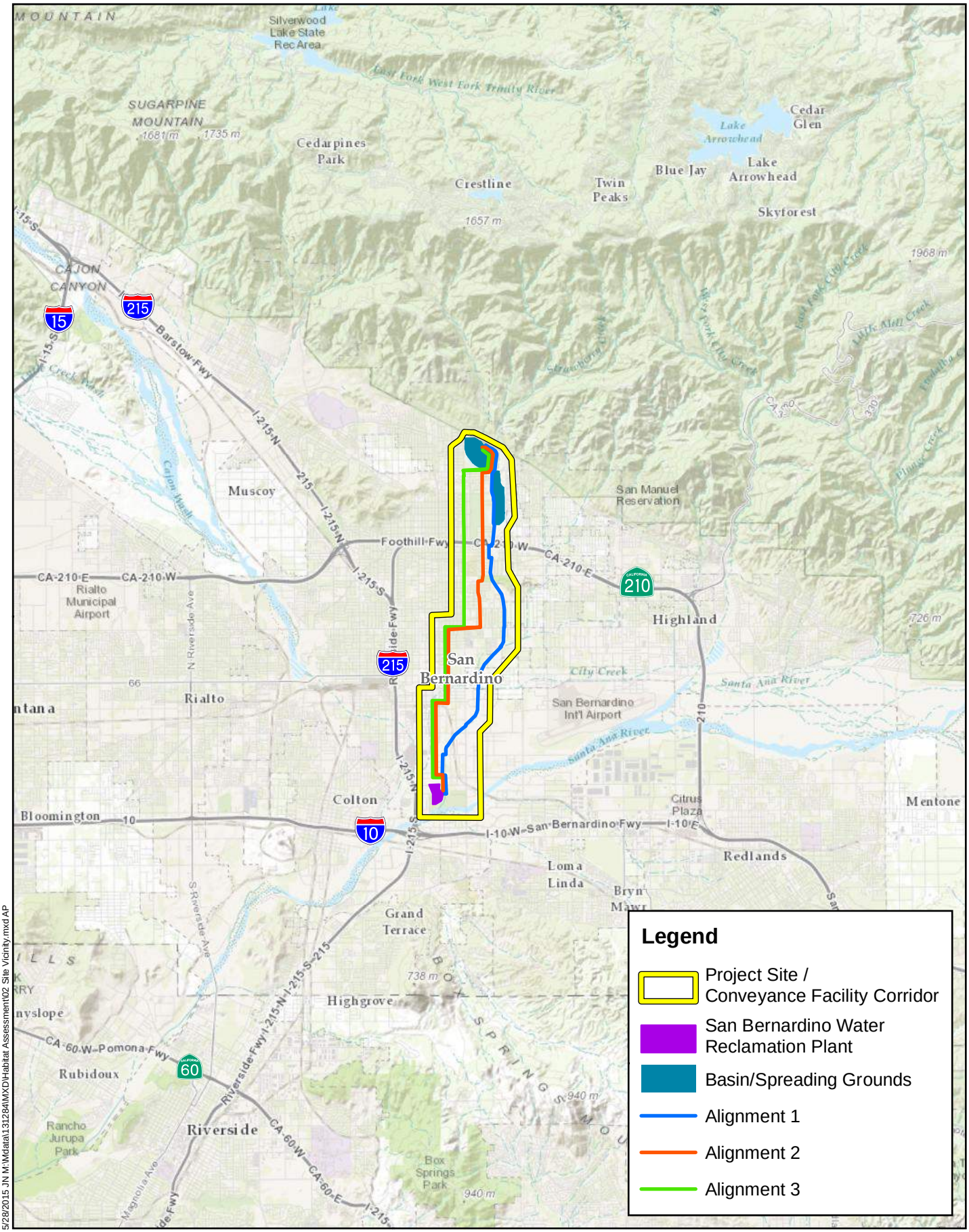
0 2.5 5 10 Miles

Source: ESRI Relief Map, National Highway Planning Network

CLEAN WATER FACTORY
HABITAT ASSESSMENT

Regional Vicinity

Exhibit 1



0 1.25 2.5 5 Miles

Source: ESRI World Imagery, San Bernardino Couty GIS

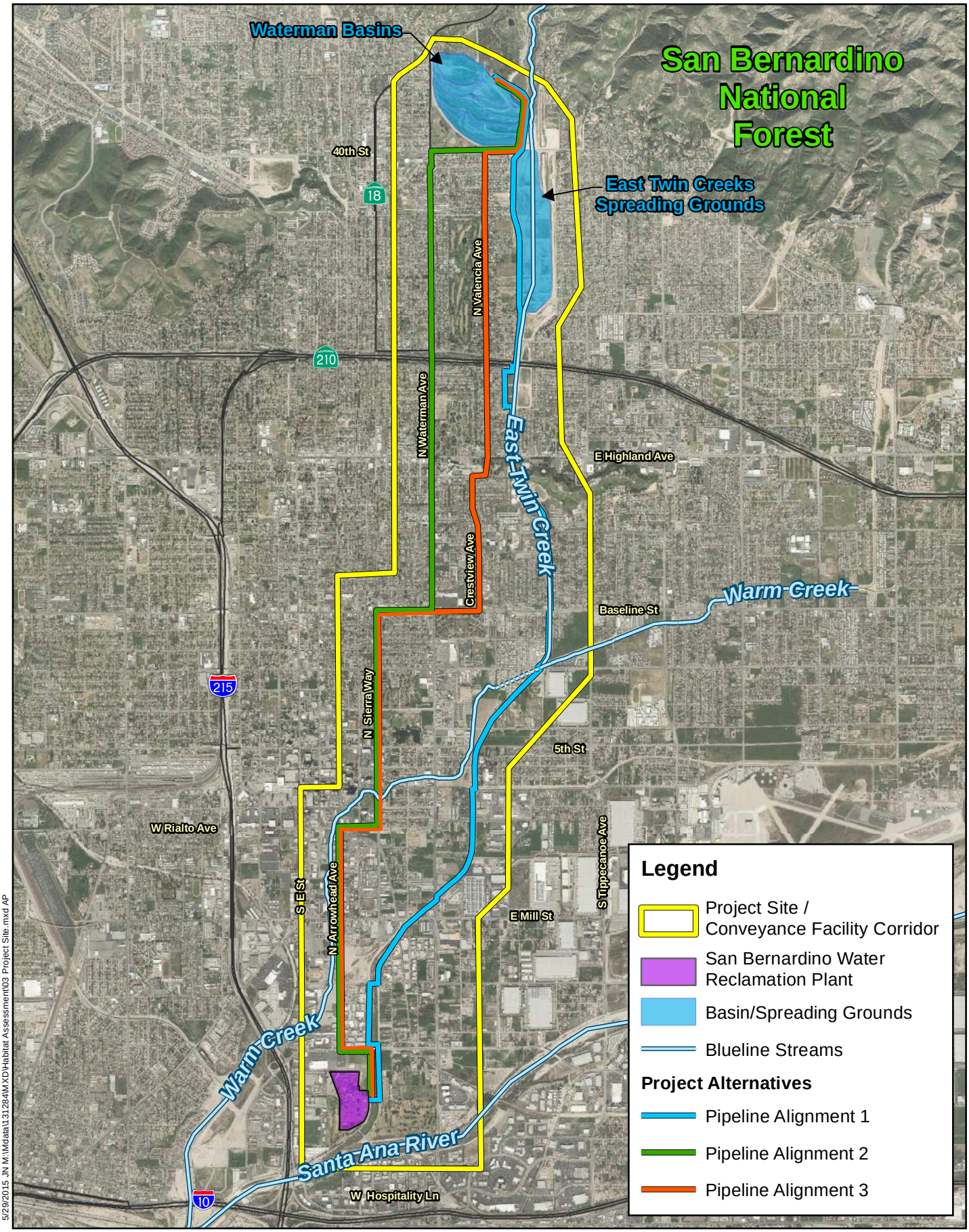
Michael Baker INTERNATIONAL

CLEAN WATER FACTORY
HABITAT ASSESSMENT

Site Vicinity

Exhibit 2

5/28/2015 JN M:\Mdata\131284\MXD\Habitat Assessment\02 Site Vicinity.mxd AP



5/29/2015 JN M:\Mdata\131284\MXD\Habitat Assessment\03 Project Site.mxd AP

Michael Baker INTERNATIONAL

0 2,250 4,500 9,000 Feet

Source: ESRI World Imagery, San Bernardino Couty GIS

CLEAN WATER FACTORY
HABITAT ASSESSMENT

Project Site

Exhibit 3

Loma Linda, and East Valley Water District to secondary standards.[3] The SBWRP conveys this secondary-treated effluent to the RIX facility for tertiary[4] treatment and then discharges it to the SAR. The City of Colton conveys an additional 5.3 mgd of secondary-treated effluent to the RIX facility for tertiary treatment and discharge to the river. RIX currently discharges approximately 31.3 mgd to the SAR.

SBMWD filed a "Petition for Change for Owners of Waste Water Treatment Plants" (WW0059) with the State Water Resources Control Board (SWRCB) on April 22, 2010 (Petition revised June 7, 2010), pursuant to Water Code Section 1211 (and in accordance with Water Code Sections 461, 13500 et seq. and 13575 et seq.) to decrease current tertiary discharge from the RIX facility to the SAR from approximately 35.7 mgd (40,000 acre-feet per year) to approximately 11.9 mgd (13,300 acre-feet per year).[5] The Petition for Change proposes the "reuse of recycled water in [SBMWD's] service area and the marketing of surplus recycled water to water agencies outside the SBMWD service area." The "change" that would result from approval of this Petition includes the "place of use" and the "purpose of use" of SBMWD's existing and future effluent. This petition was protested by the U.S. Fish and Wildlife Service (USFWS) in a July 29, 2010 letter. The letter stated that the Santa Ana sucker is dependent on the discharges from the RIX facility to help maintain suitable habitat for spawning and foraging and that the proposed decrease in outflow would reduce the available habitat for Santa Ana sucker in the SAR.

---

[3] California Code of Regulation (CCR), Title 22, Division 4, Chapter 3 has two classifications of secondary treated recycled water: disinfected secondary-2.2 and disinfected secondary-23. Section 60301.220 of the CCR defines disinfected secondary-2.2 recycled water as "[…]recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period." Section 60301.220 of the CCR defines disinfected secondary-23 recycled water as "[…]recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30 day period."

[4] CCR, Title 22, Division 4, Chapter 3, Section 60301.230 defines disinfected tertiary treated recycled water as follows: "[…]a filtered and subsequently disinfected wastewater that meets the following criteria:

(a) The filtered wastewater has been disinfected by either:
  (1) A chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or
  (2) A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque forming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.

(b) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters".

[5] City of San Bernardino Municipal Water Department. (April 22, 2010). "Petition for Change: For Owners of Waste Water Treatment Plants" (WW0059). http://www.waterboards.ca.gov/waterrights/water_issues/programs/applications/petitions/2010.shtml. Accessed on March 1, 2012.

1.3 PROJECT DESCRIPTION

SBMWD proposes the Clean Water Factory project to reduce its dependence on imported water and to establish a reliable, sustainable source of clean water. The proposed project will treat effluent from the San Bernardino Water Reclamation Plant to a quality approved for recharge as determined by the California Department of Public Health and the Santa Ana Regional Water Quality Control Board (Regional Board). The treated effluent will be conveyed to the Waterman Spreading Grounds and the East Twin Creek Spreading Grounds. Recycled water spread at these facilities will artificially recharge the Bunker Hill Groundwater Basin and, more specifically, the Bunker Hill A Management Zone, as described in the Water Quality Control Plan for the SAR Watershed. The project will also treat a side stream of SBWRP effluent to a quality approved for direct use and convey the tertiary treated recycled water to customers that can benefit from a non-potable water supply.

There are two primary components of the project. The first component is the phased-reduction in the amount of water that would be discharged from the RIX facility to the SAR through the year 2035, as shown in Table 1 below. The proposed phasing is conceptual, and may be modified through the Environmental Impact Report process and through consultation with regulatory agencies and other stakeholders. The reduction in discharge is anticipated to occur over five phases, based on the expected need for this water to be recharged over time. The reduction in discharge also has potential hydrological implications for the federally threatened SASU, due to potential changes in the depth and flow characteristics of the SAR resulting from reduced discharge, which may affect SASU habitat.

The second component of project relates to the actual facilities improvements that would be needed to accommodate the water diverted from the RIX facility for recharge into the Bunker Hill Basin. These improvements would include the following: increased water treatment capabilities; the pipes, pumps, and reservoirs needed for the conveyance system that would transport water from the SBWRP to the Waterman Spreading Grounds and the East Twin Creek Spreading Grounds; pipelines and associated improvements needed to distribute recycled water to direct use customers; and improvements at the Waterman Spreading Grounds and East Twin Creek Spreading Grounds.

Improvements to increase water treatment capabilities would generally occur within the boundaries of the existing SBWRP plant site. Improvements for the conveyance system that would connect the SBWRP to the recharge facilities would largely need to be constructed in conjunction with the first phase, although development of some individual facilities (such as the installation of individual water pumps or storage reservoirs located at the north end of the system) may be provided in later phases when required to accommodate the increased conveyance volumes that would occur in the later phases of the Project. Improvements to the recycled water distribution system, all of which are expected to occur either within existing roadways or on the sites of direct use customers, would be provided incrementally over time as the need to serve individual

customers arises. The identified improvements to the recharge basins would occur in the first phase. Potential improvements for inter-basin conveyance would be constructed depending on the timing for this product water delivery option.

Table 1: Potential RIX Discharge Phased Reduction Scenarios

Discharge Scenarios	Year	RIX Discharge (MGD)	RIX Discharge (CFS)
Baseline[1]	2012	34.3	53.0
Phase 1	2015	29.0	44.9
Phase 2	2020	24.8	38.4
Phase 3	2025	20.8	32.2
Phase 4	2030	17.0	26.3
Phase 5	2035	13.4	20.8
Zero[2]	2012	6.1[2]	9.5[2]

Source: City of San Bernardino Municipal Water Department

Notes: [1]For the model, baseline discharge was based on average RIX discharge measured on October 18-19, 2012. Average discharge was approximately 53 cfs. MGD=million gallons per day; CFS=cubic feet per second. Annual RIX discharge has varied from 36 MGD in 2010 to 31.3 MGD in 2013.

[2]Provided for illustrative purposes. Zero discharge is based on zero discharge from RIX, but it is assumed the City of Rialto wastewater treatment plant will continue to discharge approximately 10 cfs to the Santa Ana River, resulting in an existing baseline of approximately 63 cfs for Santa Ana River discharge.

Section 2 Regulatory Background

There are several overlying federal, state, and local biological resources regulations and policies that pertain to this project. These policies are summarized below, along with a brief description of how they relate to the proposed project's planning, permitting, and implementation.

2.1 FEDERAL REGULATIONS

Endangered Species Act of 1973

Federally listed threatened and endangered species and their habitats are protected under the provisions of the Federal Endangered Species Act (ESA). Section 9 of the ESA prohibits "take" of threatened or endangered species. ESA defines "take" as to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any of the specifically enumerated conduct." The presence of any federally threatened or endangered species that are in a project area generally imposes severe constraints on development, particularly if development would result in "take" of the species or its habitat. Under the regulations of the ESA, the USFWS may authorize "take" when it is incidental to, but not the purpose of, an otherwise lawful act.

Under the ESA, "Critical Habitat" is also designated at the time of listing or within one year of listing. "Critical Habitat" refers to habitat or a specific geographic area that contains the elements and features that are essential for the survival and recovery of the species. In the event that a project may result in take or in adverse effects to a species' designated Critical Habitat, the project proponent may be required to engage in suitable mitigation. If the project is on federal lands, will require federal permits (e.g. regulatory permits), or otherwise will have a federal lead agency, the proponent will be required to enter into Section 7 informal and/or formal consultations with the USFWS to obtain, if possible, a biological opinion allowing for incidental take of the species in question. If the project is on private land or will not require any federal permits, the proponent will be required to write a habitat management plan to address the impacts.

The proposed project is located within and adjacent to several overlapping areas that have been designated Critical Habitat. Direct or indirect adverse impacts to these areas known or presumed to support federally listed species may trigger the requirement for state and/or federal incidental take permits.

Section 404 of the Clean Water Act

Section 404 of the Clean Water Act (CWA) requires that a permit be obtained from the U.S. Army Corps of Engineers (Corps) prior to the discharge of dredged or fill materials into any "waters of the United States or wetlands." Waters of the United States are broadly defined in the Corps regulations (33 CFR 328) to include navigable waterways, their tributaries, lakes, ponds, and

wetlands. Wetlands are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (Federal Register 1982). Wetlands that are not specifically exempt from Section 404 regulations (such as drainage channels excavated on dry land) are considered to be "jurisdictional wetlands." In a recent Supreme Court Case, the Court acted to limit the regulatory jurisdiction of the Corps under Section 404 of the CWA as it applies to adjacent waters (USSC 2001). Specifically, the Court ruled that waters that are non-navigable, isolated, and intrastate are not subject to the Corps jurisdiction (Guzy and Anderson 2001). The Corps is required to consult with the USFWS, Environmental Protection Agency, and State Regional Board (among other agencies) in carrying out its discretionary authority under Section 404. If jurisdictional areas cannot be avoided, a Section 404 wetlands permit would be required.

Section 401 of the Clean Water Act

Applicants for a federal license or permit for activities which may discharge to waters of the US must seek Water Quality Certification from the state or Indian tribe with jurisdiction.[6] Such Certification is based on a finding that the discharge will meet water quality standards and other applicable requirements. In California, Regional Boards issue or deny Certification for discharges within their geographical jurisdiction. Water Quality Certification must be based on a finding that the proposed discharge will comply with water quality standards, which are defined as numeric and narrative objectives in each Regional Board's Basin Plan. Where applicable, the State Water Resources Control Board has this responsibility for projects affecting waters within the jurisdiction of multiple Regional Boards. The Regional Board's jurisdiction extends to all waters of the state and to all waters of the US, including wetlands.

Section 401 of the Clean Water Act requires that "any applicant for a federal permit for activities that involve a discharge to waters of the State, shall provide the federal permitting agency a certification from the State in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal Clean Water Act." Therefore, before the Corps will issue a Section 404 permit, applicants must apply for and receive a Section 401 water quality certification from the Regional Board. As noted above, jurisdictional waters will be avoided. However, if avoidance is infeasible, then a 401 permit will be required.

SBMWD filed a "Petition for Change for Owners of Waste Water Treatment Plants" (WW0059) with the SWRCB on April 22, 2010 (Petition revised June 7, 2010), pursuant to Water Code Section 1211 (and in accordance with Water Code Sections 461, 13500 et seq. and 13575 et seq.) to decrease current tertiary discharge from the RIX facility to the SAR from approximately 35.7

[6] Title 33, United States Code, Section 1341; Clean Water Act Section.

mgd (40,000 acre-feet per year) to approximately 11.9 mgd (13,300 acre-feet per year).[7] The Petition for Change proposes the "reuse of recycled water in [SBMWD's] service area and the marketing of surplus recycled water to water agencies outside the SBMWD service area."

2.2 STATE REGULATIONS

California Endangered Species Act

State-listed threatened and endangered species are protected under provisions of the California Endangered Species Act (CESA). Activities that may result in "take" of individuals (defined in CESA as to "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") are regulated by the California Department of Fish and Wildlife (CDFW). Habitat degradation or modification is not included in the definition of "take" under CESA. Nonetheless, CDFW has interpreted "take" to include the destruction of nesting, denning, or foraging habitat necessary to maintain a viable breeding population of protected species.

The CDFW has also produced a species of special concern list to serve as a species watch list. Species on this list are either of limited distribution or their habitats have been reduced substantially, such that a threat to their populations may be imminent. Species of special concern may receive special attention during environmental review, but they do not have formal statutory protection.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California by establishing State policy to prevent significant, avoidable damage to the environment through the use of alternatives or mitigation measures for projects. It applies to actions directly undertaken, financed, or permitted by State lead agencies. If a project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS). If the IS determines that the project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. CEQA Guidelines Section 15380 independently defines "endangered" and "rare" species separately from the definitions in the CESA. Under CEQA, "endangered" species of plants or animals are defined as those whose survival and reproduction in the wild are in immediate jeopardy, while "rare" species are defined as those who are in such low numbers that they could become endangered if their environment worsens.

---

[7] City of San Bernardino Municipal Water Department. (April 22, 2010). "Petition for Change: For Owners of Waste Water Treatment Plants" (WW0059). http://www.waterboards.ca.gov/waterrights/water_issues/programs/applications/petitions/2010.shtml. Accessed on March 1, 2012.

Fish and Game Code

Lake and Streambed Alteration Program

California Fish and Game Code Sections 1600-1616 establish a fee-based process to ensure that projects conducted in and around lakes, rivers, or streams do not adversely impact fish and wildlife resources, or, when adverse impacts cannot be avoided, ensures that adequate mitigation and/or compensation is provided.

Fish and Game Code Section 1602 requires any person, state, or local governmental agency or public utility to notify the CDFW before beginning any activity that will do one or more of the following:

(1) substantially obstruct or divert the natural flow of a river, stream, or lake;

(2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or

(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake.

Fish and Game Code Section 1602 applies to all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state. CDFW's regulatory authority extends to include riparian habitat (including wetlands) supported by a river, stream, or lake regardless of the presence or absence of hydric soils and saturated soil conditions. Generally, the CDFW takes jurisdiction to the top of bank of the stream or to the outer limit of the adjacent riparian vegetation (outer drip line), whichever is greater. Notification is generally required for any project that will take place in or in the vicinity of a river, stream, lake, or their tributaries. This includes rivers or streams that flow at least periodically or permanently through a bed or channel with banks that support fish or other aquatic life and watercourses having a surface or subsurface flow that support or have supported riparian vegetation.

Section 3 Methodology

A literature review and records search was conducted to determine which sensitive biological resources have the potential to occur on the project site or within the general vicinity. In addition, a general habitat assessment of the project site was conducted. The field survey provided information on the existing conditions on the site and potential for sensitive biological resources to occur.

3.1 LITERATURE REVIEW

Prior to conducting the field survey, a literature review and records search was conducted for sensitive biological resources potentially occurring on or within the vicinity of the project site. Previously recorded occurrences of special status plant and wildlife species and their proximity to the project site were determined through a query of the California Department of Fish and Wildlife (CDFW) *California Natural Diversity Database* (CNDDB) Rarefind 5, the California Native Plant Society's (CNPS) *Electronic Inventory of Rare and Endangered Plants of California*, Calflora Database, compendia of special-status species published by CDFW, and USFWS species listings.

Literature detailing biological resources previously observed in the vicinity of the project site and historical land uses were reviewed to understand the extent of disturbances to the habitats on-site. Standard field guides and texts on sensitive and non-sensitive biological resources were reviewed for habitat requirements, as well as the following resources:

- United States Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS), Soil Survey;
- USFWS Critical Habitat designations for Threatened and Endangered Species; and
- USFWS Endangered Species Profiles and/or Primary Constituent Elements (PCEs) for Santa Ana sucker, San Bernardino kangaroo rat, coastal California gnatcatcher, and least Bell's vireo.

The literature review provided a baseline to inventory the biological resources potentially occurring on the project site. Additional recorded occurrences of these species found on or near the project site were derived from database queries. The CNDDB ArcGIS database was used along with ArcGIS software to locate the nearest occurrence and determine the distance from the project site.

3.2 HABITAT ASSESSMENT AND FIELD INVESTIGATION

Michael Baker biologists Travis J. McGill and Ryan Winkleman conducted an initial inventory of the plant communities found within the boundaries of the survey area on June 19, June 25, and

July 3, 2014. A subsequent assessment was done of the Waterman Spreading Grounds and the East Twin Creek Spreading Grounds in early August 2014 to evaluate the suitability of on-site habitat for SBKR and LBV. The survey area included all three proposed pipeline alignments as well as large irrigated areas (e.g., parks, golf courses, the Waterman Spreading Grounds, and the East Twin Creek Spreading Grounds), as accessible. The survey area is encompassed within a larger facility corridor, which includes an approximate 0.25-mile buffer around the project-related facilities. Plant communities identified on aerial photographs during the literature review were ground-truthed by walking meandering transects through the plant communities and along boundaries between plant communities. The plant communities were evaluated for their potential to support sensitive plant and wildlife species, riparian/riverine habitat, and corridors and linkages that may support the movement of wildlife through the area. Special attention was paid to sensitive habitats and/or undeveloped, natural areas having a higher potential to support sensitive flora and fauna species.

Notes were taken during the survey of all plant and wildlife species detected, including dominant plant species, as well as the locations and general characteristics of potential jurisdictional features. Detections of wildlife species were made by scat, trails, tracks, burrows, nests, and visual and aural observation. In addition, site characteristics such as soil condition, topography, presence of indicator species, condition of the plant communities, hydrology, and evidence of human use of the site were noted. The plant communities were classified in accordance with CDFW (2003) and Holland (1986), delineated on an aerial photograph, and then digitized into GIS Arcview. The Arcview application was used to compute the area of each plant community in acres.

3.3 SOIL SERIES ASSESSMENT

On-site and adjoining soils were researched prior to the field visit using the USDA NRCS Soil Survey for San Bernardino County, California. In addition, a review of the local geological conditions and historical aerial photographs was conducted to assess the ecological changes the project site has undergone.

3.4 PLANT COMMUNITIES

Plant communities were mapped using 7.5-minute USGS topographic base maps and aerial photography. The plant communities within the project site were classified according to CDFW's List of Terrestrial Natural Communities (2003) and cross-referenced to descriptions provided in Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986). The CDFW does not currently have a narrative description of the vegetation communities; therefore, the descriptions provided in Appendix A are according to Holland.

3.5 PLANTS

Common plant species observed during the field survey were identified by visual characteristics and morphology in the field. Unusual or less familiar plants were identified in the laboratory using taxonomic guides. Taxonomic nomenclature used in this report follows the 2012 Jepson Manual (Hickman 2012). In this report, scientific names are provided immediately following common names of plant species (first reference only).

3.6 WILDLIFE

Wildlife species were detected and identified during the field survey by sight, calls, tracks, scat, trails, burrows, and nests. Field guides were used to assist with identification of species during surveys and included the National Geographic Field Guide to the Birds of North America (2011) for birds and Burt and Grossenheider (1980) for mammals. In this report, scientific names are provided immediately following common names of wildlife species (first reference only).

3.7 JURISDICTIONAL AREAS

Aerial photography was reviewed prior to conducting the habitat assessment. The aerials were used to locate and inspect any potential natural drainage features and water bodies that may fall under the jurisdiction of the Corps, Regional Board, or CDFW. In general, surface drainage features indicated as blue-line streams on USGS maps that are observed or expected to exhibit evidence of flow are considered potential riparian/riverine habitat and are also subject to state and federal regulatory authorities. During the habitat assessment, East Twin Creek (adjacent to Alignment 1), City Creek (tributary to East Twin Creek), Warm Creek (crosses Alignments 2 and 3), and the Santa Ana River were noted as surface drainage features that either are recognized federal and/or state jurisdictional waters or are likely to qualify as federal and state jurisdictional waters. This habitat assessment did not include a formal jurisdictional delineation.

Section 4 Existing Conditions

4.1 LOCAL CLIMATE

The region has a year-round Mediterranean climate or semi-arid climate, with warm, sunny, dry summers and cool, rainy, mild winters. Average annual precipitation ranges from 12 inches per year in the coastal plain to 18 inches per year in the inland alluvial valleys, reaching 40 inches or more in the San Bernardino Mountains. Most of the precipitation occurs between November and March in the form of rain with variable amounts of snow in the higher elevations. The climatological cycle of the region results in higher surface water flows in the spring and early summer and lower flows during the dry season. Winter and spring floods generated by storms are not uncommon in wet years. Similarly, during the dry season, infrequent summer storms can cause torrential floods in local streams. Weather conditions during the surveys generally ranged from the mid-70s to the mid-80s degrees Fahrenheit (F) with calm winds.

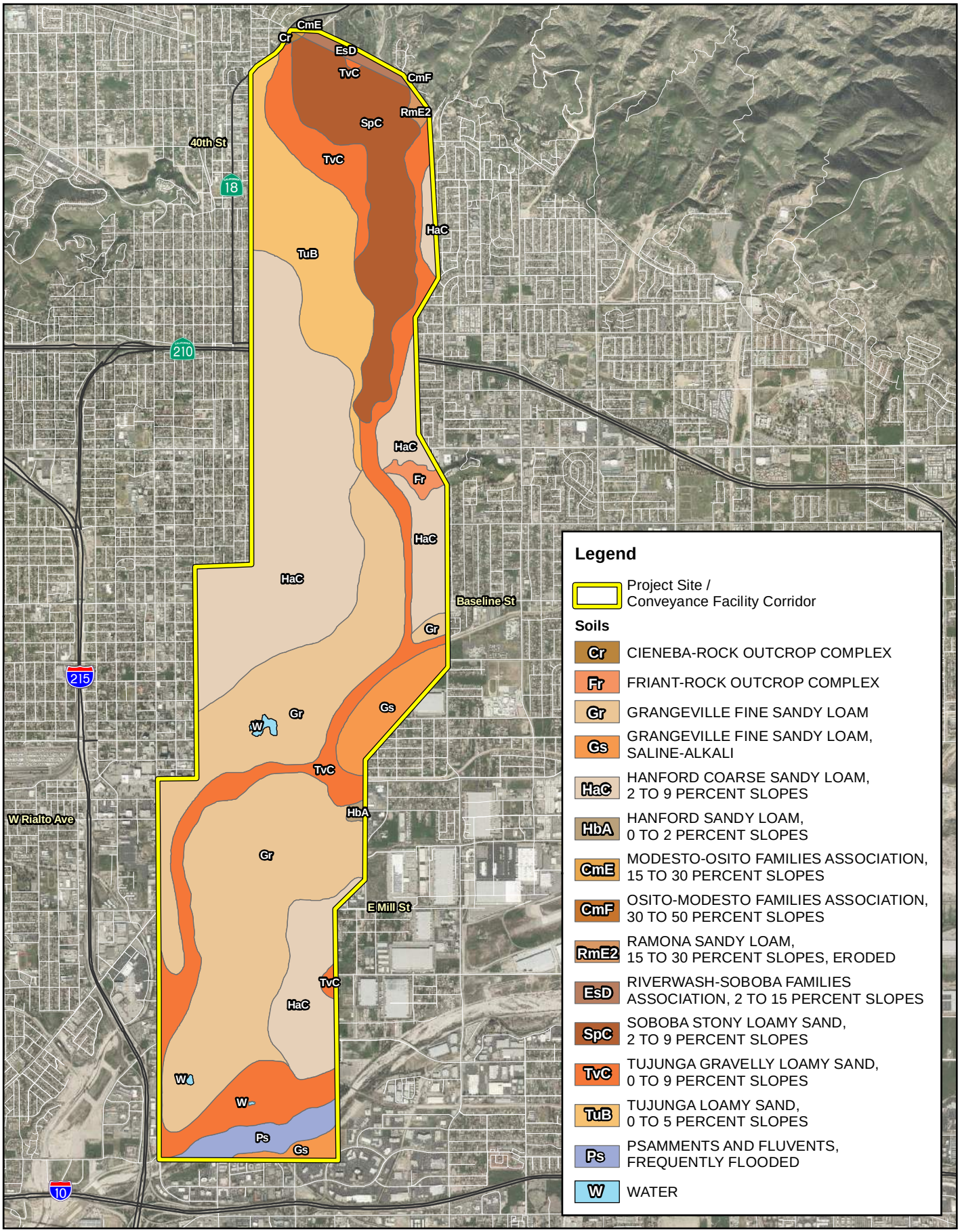
4.2 TOPOGRAPHY AND SOILS

Surface elevations range from approximately 975 to 1,520 feet above mean sea level (msl) with elevations gradually decreasing in a north-to-south direction. Based on the USDA Soil Survey, the facility corridor is underlain by the following soil units (Exhibit 4, *Soils*): Cienaba-Rock outcrop complex; Friant-Rock outcrop complex; Grangeville fine sandy loam; Grangeville fine sandy loam (saline-alkali); Hanford coarse sandy loam (2 to 9 percent); Hanford sandy loam (0 to 2 percent); Psamments, Fluvents and Frequently flooded soils; Ramona sandy loam (15 to 30 percent, eroded); Soboba stony loamy sand (2 to 9 percent); Tujunga loamy sand (0 to 5 percent); and Tujunga gravelly loamy sand (0 to 9 percent). A small portion of the facility corridor extends into the San Bernardino National Forest and includes the Modesto-Osito families association (15 to 30 percent), Osito-Modesto families association (30 to 50 percent), and Riverwash-Soboba families association (2 to 15 percent).

4.3 SURROUNDING LAND USES

The project site is located in the City of San Bernardino. Most of the surrounding land uses are urban uses, including residential, commercial, industrial, recreational, educational, funerary, and governmental. The northern section of the project site is adjacent to a series of flood control basins, and Alignment 1 is entirely adjacent to East Twin Creek, a tributary to the Santa Ana River that is mostly cement-lined within the facility corridor. All three alternatives at the northern edge of the project site are adjacent to a series of percolation ponds called the Waterman Spreading Grounds (north of 40th Street), while Alternative 1 is adjacent to percolation ponds called the East Twin Creek Spreading Grounds between 40th Street and 27th Street. The San Bernardino National Forest is located directly north of the northern end of the project. The SBWRP is located at the southern end of the facility corridor at the confluence of East Twin Creek and the Santa Ana River. Water

that is treated in the SBWRP is conveyed via a pipeline to the RIX, located approximately four miles southwest of the SBWRP at Agua Mansa Road and West Hopkins Road, where it is currently discharged into the SAR.



9/17/2014 JN M:\Mdata\131284\MXD\Habitat Assessment\04 Soils.mxd AP

CLEAN WATER FACTORY
HABITAT ASSESSMENT

Soils

Michael Baker INTERNATIONAL

0 2,250 4,500 9,000 Feet

Source: ESRI World Imagery, San Bernardino County GIS, NRCS Soils Data Mart

Exhibit 4

Section 5 Discussion

5.1 SITE CONDITIONS

The project site is almost entirely developed, with the exception of the flood control basins in the northeast portion of the project site. Alignments 2 and 3 run entirely through the urbanized streets of the City of San Bernardino, crossing over Warm Creek south of West 3rd Street at Meadowbrook Park. Alignment 1 is adjacent to East Twin Creek. Between East 40th Street and East 27th Street, East Twin Creek is contained within a series of flood control basins that are variably covered in grasses and/or low-growing shrubs; these basins are called the East Twin Creek Spreading Grounds. At the time of the survey, standing water was present in one of the upper basins. North of East 40th Street, all three alternatives run along the edge of the Waterman Spreading Grounds, a series of additional basins mostly covered in low-growing native and non-native vegetation communities with some small areas of riparian vegetation.

Reclaimed water from the RIX facility and the treated wastewater discharged into the adjacent Rialto Drain are the primary sources of water in the middle reach of the Santa Ana River during the dry season. The pre-project discharge from the RIX facility and the Rialto Drain are 53.0 and 9.5 cfs, respectively, for a total discharge rate of 62.5 cfs from this point. The Santa Ana River is generally dry from E Street downstream to the Rialto Drain and RIX facility except during rain events.

5.2 VEGETATION

Vegetation mapping was primarily conducted within the Waterman Spreading Grounds and the East Twin Creek Spreading Grounds where open space and native habitat occurs. Six (6) plant communities were observed within the boundaries of the project site during the habitat assessment (Exhibit 5, *Vegetation*): Riversidean Sage Scrub (RSS), Southern Riparian Scrub, Southern Willow Scrub, Mulefat Scrub, Non-native Grassland, and Eucalyptus Stand. In addition, biologists mapped a Pond and areas that were considered Disturbed, Developed, Concrete Channel, and Unvegetated Channel. These plant communities are described in further detail below.

5.2.1 Riversidean Sage Scrub

The RSS community is primarily located in the southern half of the Waterman Spreading Grounds and along the banks of East Twin Creek north of East 40th Street. Due to maintenance and flooding, the bottoms of the basins no longer support native vegetation. The RSS community persists primarily on the slopes of the basins, with higher quality vegetation (14.3 acres) located in the southern basins and disturbed RSS (63.1 acres) located in the central basins. Vegetation in these RSS communities is primarily composed of California buckwheat (*Eriogonum fasciculatum*), California sagebrush (*Artemisia californica*), scalebroom (*Lepidospartum squamatum*), yerba santa (*Eriodictyon californicum*), Russian thistle (*Salsola tragus*), and

fountaingrass (*Pennisetum setaceum*). Two of the lower basins also contained patches of eucalyptus trees (*Eucalyptus* sp.).

5.2.1 Southern Riparian Scrub

Two patches of southern riparian scrub totalling 3.9 acres are present within the Waterman Spreading Grounds, one of which is associated with East Twin Creek. This patch of vegetation in particular is dominated by native riparian vegetation including arroyo willow (*Salix lasiolepis*), black willow (*Salix gooddinggii*), cottonwood (*Populus fremontii*), and western sycamore (*Platanus racemosa*). The westernmost, smaller patch includes numerous additional species, many of which are non-native such as jacaranda (*Jacaranda mimosifolia*), oleander (*Nerium oleander*), giant reed (*Arundo donax*), and Peruvian pepper (*Schinus molle*).

5.2.2 Southern Willow Scrub

A 2.0-acre patch of southern willow scrub is present in the northwestern portion of the Waterman Spreading Grounds. This community is composed almost entirely of black willow, with scattered mulefat (*Baccharis salicifolia*), castor bean (*Ricinus communis*), and a few eucalyptus trees.

5.2.3 Mulefat Scrub

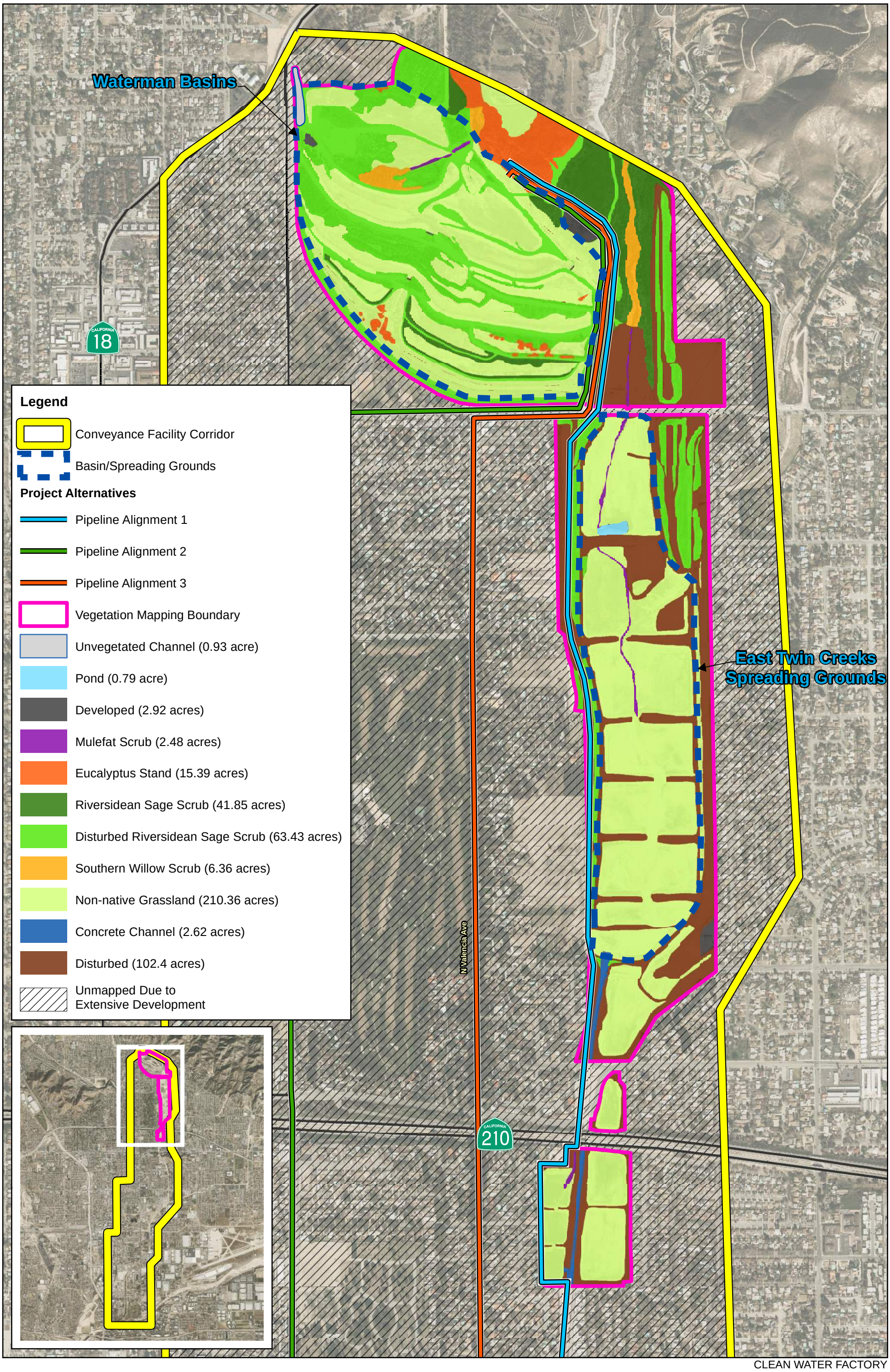
Approximately 2.1 acres of mulefat scrub are located upstream of the southern willow scrub in the Waterman Spreading Grounds, as well as in East Twin Creek both north and south of East 40th Street. It is primarily dominated by mulefat, but also contains black willow, common sunflower (*Helianthus annuus*), and tree tobacco (*Nicotiana glauca*).

5.2.4 Non-native Grassland

Approximately 209.7 acres of non-native grasslands are located throughout the upper Waterman Spreading Grounds, in the bottoms of the lower basins, and throughout the East Twin Creek Spreading Grounds. Vegetation in this community is dominated by species such as Russian thistle, ripgut brome (*Bromus diandrus*), red brome (*Bromus madritensis*), wild oats (*Avena fatua*), tree tobacco, common sunflower, castor bean, telegraph weed (*Heterotheca grandiflora*), common horsetail (*Equisetum arvense*), and shortpod mustard (*Hirschfeldia incana*).

5.2.5 Eucalyptus Stand

Several eucalyptus stands, 14.5 acres in total area, are scattered throughout the Waterman Spreading Grounds. Several small stands are located in the lower Waterman Spreading Grounds, while one large grove of trees is located on the northern boundary of the basins. These areas are dominated by eucalyptus trees and generally have a layer of non-native grasses underneath. A 0.5-acre tamarisk thicket is located within the largest grove of trees.



5/28/2015 JN M:\Mdata\131284\MXD\Habitat Assessment\05 Veg update.mxd AP

Michael Baker INTERNATIONAL

0 450 900 1,800 Feet

Source: Eagle Aerial Imagery, 2014

CLEAN WATER FACTORY
HABITAT ASSESSMENT

Vegetation

Exhibit 5

This page intentionally left blank

5.2.6 Pond

A 0.7-acre ponded area is present in the northernmost basin of the East Twin Creek Spreading Grounds. Vegetation surrounding the pond included species such as curly dock (*Rumex crispus*), common sunflower, broadleaf cattail (*Typha latifolia*), Russian thistle, rabbitsfoot grass (*Polypogon monspeliensis*), cheeseweed (*Malva parviflora*), and Mexican sprangletop (*Leptochloa uninervia*).

5.2.7 Disturbed

Disturbed areas comprising 143.9 acres primarily include unpaved roads along the upper margins of the Waterman Spreading Grounds and throughout the East Twin Creek Spreading Grounds. An area along East Twin Creek immediately north of East 40th Street is categorized as disturbed since it is continually mowed and kept clear of vegetation.

5.2.8 Developed

There are 2.9 acres of developed areas, which primarily include paved roads. In the Waterman Spreading Grounds this also included cement drainage outlets and maintenance areas. Outside of the Waterman Spreading Grounds, Alignments 2 and 3 will be located in city streets or other developed areas with some limited ornamental vegetation.

5.2.9 Concrete Channel

A 2.6 acres concrete channel conveys flow through East Twin Creek in the lower portion of the East Twin Creek Spreading Grounds. This channel is unvegetated.

5.2.10 Earthen Channel

A 0.9-acre earthen dirt channel with a rocky bottom is present in the northwest corner of the Waterman Spreading Grounds. This channel flows into the basins, but is cleared of vegetation.

5.3 WILDLIFE

Plant communities within the upland areas provide food sources, along with foraging, nesting and denning sites, cover, and protection from adverse weather or predation. This section provides a discussion of the wildlife species observed, expected, or not expected to occur on-site. The discussion is to be used as a general reference and is limited by the season, time of day, and weather condition in which the survey was conducted. Wildlife observations were based on calls, songs, scat, tracks, burrows and actual sightings of animals. The potential for sensitive species is discussed below in Section 5.7.

5.3.1 Amphibians

No amphibians were detected during the habitat assessment surveys. Most of the suitable amphibian habitat within and adjacent to the project site is isolated in the form of lakes and ponds. East Twin Creek and Warm Creek may provide limited habitat for amphibians, but East Twin Creek is cement-lined south of Marshall Boulevard and contains no riparian vegetation until south of Mill Street. The most suitable amphibian habitat would be in the Waterman Spreading Grounds or East Twin Creek Spreading Grounds. While Warm Creek is inundated immediately downstream of where it crosses Alternatives 2 and 3, according to posted warning signs, the water temperature is measured at 140°F and therefore no amphibian life is expected. The amphibian species most likely to occur in the basins or in the ponds and lakes include Baja California chorus frog (*Pseudacris hypochondriaca*), western toad (*Anaxyrus boreas*), American bullfrog (*Lithobates catesbeianus*), and African clawed frog (*Xenopus laevis*). No sensitive species were observed.

5.3.2 Reptiles

The project site has the potential to support both terrestrial and aquatic reptiles; while the terrestrial parks and dry flood control basins would be optimal habitat for lizards and snakes, the urban water bodies in parks would likely support turtles. Two lizards were detected during the surveys: common side-blotched lizard (*Uta stansburiana*) and coastal whiptail (*Aspidoscelis tigris stejnegeri*). The general project vicinity has the potential to support a number of reptilian species including western fence lizard (*Sceloporus occidentalis*), alligator lizard (*Elgaria multicarinata*), gopher snake (*Pituophis catenifer*), California kingsnake *(Lampropeltis getula californiae*), southern Pacific rattlesnake (*Crotalus oreganus helleri*), and red-eared slider (*Trachemys scripta elegans*).

5.3.3 Avian

The project site and adjacent area support a high variety of avian species. Because of the high number of species observed, only the most numerous are mentioned here. Those that were observed in the greatest numbers included house finch (*Haemorhous mexicanus*), house sparrow (*Passer domesticus*), black phoebe (*Sayornis nigricans*), bushtit (*Psaltriparus minimus*), great-tailed grackle (*Quiscalus mexicanus*), mallard (*Anas platyrhynchos*), northern rough-winged swallow (*Stelgidopteryx serripennis*), domestic swan goose (*Anser cygnoides*), domestic graylag goose (*Anser anser*), and American robin (*Turdus migratorius*).

5.3.4 Mammals

The plant communities within the project site are anticipated to provide suitable habitat for a number of mammalian species acclimated to heavy disturbance. However, most mammal species are nocturnal and therefore are difficult to observe during a diurnal field visit. Two mammal species were detected during the habitat assessment surveys, California ground squirrel (*Otospermophilus beecheyi*) and fox squirrel (*Sciurus niger*). Other common mammalian species

that may occur on the project site include coyote (*Canis latrans*), Botta's pocket gopher (*Thomomys bottae*), raccoon (*Procyon lotor*), and cottontail rabbits (*Sylvilagus audubonii*). Mammals such as bobcats (*Lynx rufus*) and mountain lions (*Felis concolor*) are likely to migrate through the general area in the Santa Ana River. No sensitive mammal species or sign were observed.

5.3.5 Fish

No fish were observed during the habitat assessment surveys of the immediate area of the project site where pipeline routes and basins would be newly constructed or improved. Downstream areas of the Santa Ana River provide suitable habitat for various fish species, including the federally threatened Santa Ana sucker (*Catostomus santaanae*) and California species of special concern arroyo chub (*Gila orcuttii*).

5.4 NESTING BIRDS

The plant communities within and adjacent to the project site have the potential to provide suitable nesting opportunities for raptors and passerines. The habitat assessment was conducted during the breeding season, and one confirmed phainopepla (*Phainopepla nitens*) nest was observed with young. No other confirmed avian nests were observed during the surveys.

5.5 MIGRATORY CORRIDORS AND LINKAGES

Due to the extensive development of the City of San Bernardino, migratory corridors within the City are limited. The small channels running within the project corridor may provide limited potential for migrating wildlife, particularly fish, birds, and large mammals. The San Bernardino County Land Use Plan depicts wildlife corridors within the Open Space Element, three of which are located in or adjacent to the project corridor. These include the Waterman Canyon wildlife corridor, which extends into the upper reaches of the project area and encompasses the Waterman Spreading Grounds. In addition, the Santa Ana River, which runs along the south side of the project and outside of the disturbance area, is designated by the County's Land Use Plan as a wildlife corridor. The Cajon Wash wildlife corridor crosses the Santa Ana River and is located immediately west and outside of the project corridor.

5.6 JURISDICTIONAL AREAS

A formal jurisdictional delineation has not been conducted for the proposed project. However, East Twin Creek, City Creek, Warm Creek, and the Santa Ana River are recognized jurisdictional waters. The proposed project is designed to avoid direct impacts to these waterways. It is not currently expected that 404, 401, or 1602 permits would be required, but if project design changes and directly impacts these waterways, any or all of these permits may be required prior to construction.

5.7 SENSITIVE BIOLOGICAL RESOURCES

The CNDDB was queried for reported locations of listed and sensitive plant and wildlife species as well as sensitive natural plant communities in the San Bernardino North and San Bernardino South USGS 7.5-minute quadrangles. An additional search for aquatic and riparian species (i.e. those likely to occur on the Santa Ana River) was conducted for the Riverside West quadrangle. A search of published records of these species was conducted within these three quadrangles using the CNDDB Rarefind 5 online software. The CNPS Inventory of Rare and Endangered Plants of California supplied information regarding the distribution and habitats of vascular plants in the vicinity of the project site. The habitat assessment was used to assess the ability of the plant communities found on-site to provide suitable habitat for relevant special-status plant and wildlife species.

The literature search identified 29 sensitive plant species, 35 sensitive wildlife species, and five sensitive habitats as having the potential to occur within the queried quadrangles. Sensitive plant and wildlife species were evaluated for their potential to occur within the project boundaries based on habitat requirements, availability and quality of suitable habitat, and known distributions. Species determined to have the potential to occur within the general vicinity are presented in Appendix A, Sensitive Habitats and Potentially Occurring Sensitive Plant and Wildlife Species. Appendix A summarizes conclusions from analysis and field surveys regarding the potential occurrence of listed and sensitive plant and wildlife species within the project site.

5.7.1 Sensitive Plants

Twenty-nine special-status plant species have been recorded in the San Bernardino North and San Bernardino South USGS quadrangles, as well as in riparian habitat in the Riverside West quadrangle. Based on habitat requirements for specific species and the availability and quality of habitats needed by sensitive plant species, it was determined that the survey area has a moderate potential to provide suitable habitat for Parry's spineflower (*Chorizanthe parryi var. parryi*) and a low potential to support thread-leaved brodiaea (*Brodiaea filifolia*), Plummer's mariposa lily (*Calochortus plummerae*), smooth tarplant (*Centromadia pungens ssp. laevis*), slender-horned spineflower, Santa Ana River woollystar, mesa horkelia (*Horkelia cuneata var. puberula*), California satintail (*Imperata brevifolia*), Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*), and Parish's desert-thorn (*Lycium parishii*). Sensitive plant surveys were conducted within the Waterman Spreading Grounds in summer 2015 for thread-leaved brodiaea, Plummer's mariposa lily, smooth tarplant, mesa horkelia, California satintail, and Robinson's pepper-grass. No sensitive plant species were found.

Parry's Spineflower

Parry's spineflower is an annual herb that flowers between April and June. It is designated by the CNPS with the Rare Plant Rank 1B.1, indicating that is rare, threatened, or endangered in

California and elsewhere, and is seriously endangered in California. It is endemic to California and is only found in Los Angeles, Riverside, and San Bernardino Counties. It occurs in sandy or rocky openings in chaparral, cismontane woodland, coastal scrub, and valley and foothill grassland at elevations between 131 and 5,594 feet.

There is suitable habitat for this species within the Waterman Spreading Grounds, which run directly adjacent to the project alignments and are within the project corridor. There is a CNDDB record of this species within the Spreading Grounds from 1993 that is considered extant. As noted, sensitive plant survey in 2015 were negative.

5.7.2 Sensitive Wildlife

Thirty-five special-status wildlife species have been recorded in the San Bernardino North and San Bernardino South USGS quadrangles, as well as in riparian habitat in the Riverside West quadrangle. Based on habitat requirements for specific species and the availability and quality of habitats needed by sensitive wildlife species, it was determined that the project site has a moderate or high potential to provide suitable habitat for eight (8) special-status wildlife species and a low potential to support 12 special-status species. Two (2) special-status wildlife species, coastal whiptail (*Aspidoscelis tigris stejnegeri*) and yellow warbler (*Setophaga petechia*), were detected during the habitat assessment.

There is a low potential to support orangethroat whiptail (*Aspidoscelis hyperythra*), burrowing owl (*Athene cunicularia*), Swainson's hawk (*Buteo swainsoni*), Busck's gallmoth (*Carolella busckana*), red-diamond rattlesnake (*Crotalus ruber*), San Bernardino ringneck snake (*Diadophis punctatus modestus*), western mastiff bat (*Eumops perotis californicus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*), San Diego desert woodrat (*Neotoma lepida intermedia*), coastal California gnatcatcher, American badger (*Taxidea taxus*), and two-striped garter snake (*Thamnophis hammondii*). These species are not discussed further, but species that have a moderate or higher potential to occur in the project site are described in greater detail below.

5.7.2.1 Amphibian and Reptile Species

Based on the results of the habitat assessment, it was determined that the habitat in and around the project site has a moderate potential to provide suitable habitat for two (2) sensitive reptile species listed in the CNDDB as having the potential to occur on or within the general vicinity of the project site: rosy boa (*Charina trivirgata*) and coast horned lizard (*Phrynosoma blainvillii*). In addition, one sensitive reptile, coastal whiptail, was observed on-site and should be considered present.

Coastal Whiptail

The coastal whiptail, which is a subspecies of the tiger whiptail (*Aspidoscelis tigris*), ranges throughout the coastal region of southern California, where it can be found in coastal sage, chaparral, riparian, oak and pine woodland, pinyon-juniper woodland, and rocky foothill habitats. It is typically active from spring to late summer, with breeding from April to June. Juveniles hatch between August and September and may be active into the fall, after adults have already gone into brumation.

One coastal whiptail was observed during site assessment surveys in the upper basins of East Twin Creek. It is most likely to occur in these spreading grounds or in the Waterman Spreading Grounds. Coastal whiptail is expected to be present in the project vicinity.

Rosy Boa

The rosy boa ranges through California, Arizona, and northern Mexico. It is most often found in sage scrub, chaparral, oak and pine woodlands, pinyon-juniper woodlands, and in deserts. Although often found near water, it is not restricted to these areas. The rosy boa active period is generally from February to October, though there may be some intermittent activity during the inactive period during unusually warm days. Rosy boas have been found to utilize rodent burrows more often than any other source of cover.

There is a single 2007 CNDDB record within the search area, located approximately three miles northwest of the project site. The most suitable habitat for this species is in the Waterman Spreading Grounds, where the mixture of intermittent moisture with sage scrub and brush presents suitable habitat for rosy boas to occur. Rosy boa has a moderate potential to occur in the project vicinity.

Coast Horned Lizard

The coast horned lizard is designated by the CDFW as a California species of special concern. It ranges throughout coastal California and Baja California. It is most often found in chaparral, sage scrub, oak woodland, and coniferous forest, often in sandy washes or amongst shrubby vegetation that it can use for cover. The activity period for adults typically begins in March when males emerge from brumation, ending in September when females retreat; hatchlings are born beginning in late July and will stay active until November. Horned lizards bury themselves in the sand during periods of inactivity.

There are several CNDDB records of coast horned lizards in the general project vicinity. This species is most likely to occur in the Waterman Spreading Grounds or East Twin Creek Spreading Grounds, where the scrubby vegetation and sandy soils would fit its habitat needs best. Coast horned lizard has a moderate potential to occur in the project vicinity.

5.7.2.2 Avian Species

Based on the results of the habitat assessment, it was determined that the habitat in and around the project site has a moderate or higher potential to provide suitable habitat for two (2) sensitive avian species listed in the CNDDB as having the potential to occur on or within the general vicinity of the project site: California horned lark (*Eremophila alpestris actia*) and Least Bell's vireo. A single male least Bell's vireo was identified on site. In addition, yellow warbler, a sensitive species, although not identified by the CNDDB, was detected during the habitat assessment.

California Horned Lark

The California horned lark is designated by the CDFW as a California watch list species. While horned larks are year-round residents throughout most of the United States and Mexico and breeding residents in much of Canada, the "California" subspecies only occurs west of the coastal ranges of California and northern Baja California. Horned larks generally occur in open areas, most often in shortgrass habitats or areas characterized by other low-growing vegetation. They may be found in disturbed, ruderal areas or even on manicured lawns (e.g. city parks and baseball fields). The horned lark breeding period generally extends from mid-February to mid-August.

There is only one CNDDB record for this species in the project vicinity, approximately 3.25 miles northwest at California State University San Bernardino, where this species is generally a rare visitor in the fall and winter. There is suitable habitat in the areas surrounding the project site, including in disturbed areas such as the Waterman Spreading Grounds and on lawns of nearby schools, golf courses, parks, or other irrigated areas. The California horned lark has a moderate potential to occur.

Yellow Warbler

The yellow warbler is designated by the CDFW as a California species of special concern. This designation applies to the *brewsteri* subspecies, which occurs along the Pacific Coast from northern Baja California to south of Victoria Island in Washington. This species is a summer migrant to southern California, inhabiting riparian woodlands throughout southern California. This species typically retreats to montane habitats for breeding, although some individuals will remain in lowland areas; the project site (i.e. the Waterman Spreading Grounds) are in an edge zone between montane and lowland habitats. The yellow warbler nesting period generally extends from mid-March to early August.

There are no CNDDB records for this species in the project vicinity. However, multiple individuals of this species were detected in the Waterman Spreading Grounds during the habitat assessment. Yellow warbler is expected to be present within the project area during the spring and summer months.

Least Bell's Vireo

The LBV is listed as endangered by both the ESA and CESA. While Bell's vireo ranges throughout the southern American Southwest, the Midwest, and Mexico, the "least" subspecies only occurs in the coastal half of southern California and into Baja California. This species occurs in a variety of riparian habitats, including riparian woodlands, riparian scrub, brushy fields, young forests, scrub oaks, coastal chaparral, and mesquite brushlands. Surface water is preferred but is not required, and in California this species shows a high tendency toward willow (*Salix* sp.) cover. The Bell's vireo breeding season typically extends from early April to the end of July.

There are several CNDDB records of this species along the Santa Ana River and within the general project vicinity, with the closest being a 2013 record approximately 0.5 mile from the southern end of Alignment 1 (in the Santa Ana River) and within the facility corridor. There is suitable habitat for this species in the Waterman Spreading Grounds, where patches of Southern Willow Scrub are present. According to the San Bernardino County Flood Control District (SBCFCD), LBV has been documented in the Waterman Spreading Grounds in the past. No Bell's vireos were detected during the habitat assessment in the upland areas but they are common along the SAR outside the project boundaries and in the vicinity of the RIX facility. LBV has a high potential to occur in the project vicinity. Michael Baker conducted a focused survey effort for LBV within the Waterman Spreading Grounds in June and July 2015. One male LBV was found within the basin during a single survey; results were negative during all other surveys and no evidence of active nesting was found.

5.7.2.3 Mammalian Species

Based on the results of the habitat assessment, it was determined that the habitat on the project site has a moderate to high potential to provide suitable habitat for four sensitive mammal species listed in the CNDDB as having the potential to occur on or within the general vicinity of the project site: northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), SBKR, western yellow bat (*Lasiurus xanthinus*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*).

Northwestern San Diego Pocket Mouse

The northwestern San Diego pocket mouse is designated by the CDFW as a California species of special concern. It occurs in San Diego, Riverside, San Bernardino, and Los Angeles Counties. Typical habitat includes sage scrub, sage scrub/grassland ecotones, and chaparral, often where there are gravelly or rocky substrates. The breeding season reaches its peak in spring and early summer.

There are several CNDDB records of this species in the general project vicinity, with the closest approximately 2.2 miles northwest from 1993. There is suitable habitat for this species on the upper end of the project site around the Waterman Spreading Grounds. Northwestern San Diego pocket mouse has a moderate potential to occur in the project vicinity.

San Bernardino Kangaroo Rat

The San Bernardino kangaroo rat is listed as endangered by ESA and is designated by the CDFW as a California species of special concern. Its range extends between Riverside and San Bernardino Counties. It can most often be found in alluvial scrub/sage scrub habitats on gravelly and sandy soils along river and stream terraces, or on alluvial fans; its characteristic plant community is Riversidean Alluvial Fan Sage Scrub. Breeding typically occurs between February and October; although one brood is typical, SBKR can breed twice in one year if the food supply is abundant.

According to the SBCFCD, SBKR has been documented in the Waterman Spreading Grounds in the past. A SBKR habitat suitability assessment was conducted within the Waterman Spreading Grounds and East Twin Creek Spreading Grounds in August 2014. The project site does not support undisturbed RAFSS habitats and is no longer exposed to hydrological processes needed to maintain suitable SBKR habitat. However, field sign for kangaroo rat, including SBKR, were observed throughout the disturbed RSS plant community on the banks of the basins. Without trapping, it is unknown if SBKR inhabit the project site.

A CNDDB query was conducted for documented locations of SBKR, and the closest observation for SBKR was documented in a 1997 record approximately 1.25 miles east of the facility corridor. Focused trapping studies for SBKR have not been conducted on this project site. Based on the size of the burrows, it is expected that the site is inhabited by Dulzura kangaroo rat (*Dipodomys simulans*); however, trapping is recommended to verify that SBKR is not present. SBKR has a moderate potential to occur in the project vicinity. Focused trapping for SBKR was conducted in August 2015 in the Waterman Spreading Grounds. Trapping results were negative for this species.

Western Yellow Bat

The western yellow bat is designated by the CDFW as a California species of special concern. Its range extends through the southern portions of California, Arizona, New Mexico, and possibly Texas, as well as Mexico and Central America. It occurs in forests, but in the arid southwestern U.S. it is found in deserts. In California it roosts almost exclusively in the skirts of native and ornamental palm trees and is limited in its distribution by the availability of palms. Pregnant females have been captured in the U.S. between April and June.

There are two CNDDB records of this species in the vicinity, with the closest being a 1984 record approximately 2.65 miles southwest of the facility corridor. There is suitable habitat for this species wherever there are palm trees, which are scattered throughout the project site. Western yellow bat has a moderate potential to occur in the project vicinity.

Los Angeles Pocket Mouse

The Los Angeles pocket mouse is designated by the CDFW as a California species of special concern. Its current range has changed little from its historic distribution, as it is still known from

the Etiwanda Wash east to Cabazon and south through the San Jacinto and Temecula Valleys to Aguanga, Warner Pass, Vail, and Temecula; historically it was also known in the San Fernando Valley and may still occur in un-surveyed areas. This species occurs in low elevation grasslands, alluvial sage scrub, and coastal sage scrub. It hibernates between October and February.

There are numerous CNDDB records of this species in the project vicinity, with the closest being a 1993 record approximately 1.7 miles northwest of the project. There is suitable habitat for this species in the upper portions of the project site. Los Angeles pocket mouse has a moderate potential to occur in the project vicinity. Surveys for SBKR should also determine the presence or absence of this species.

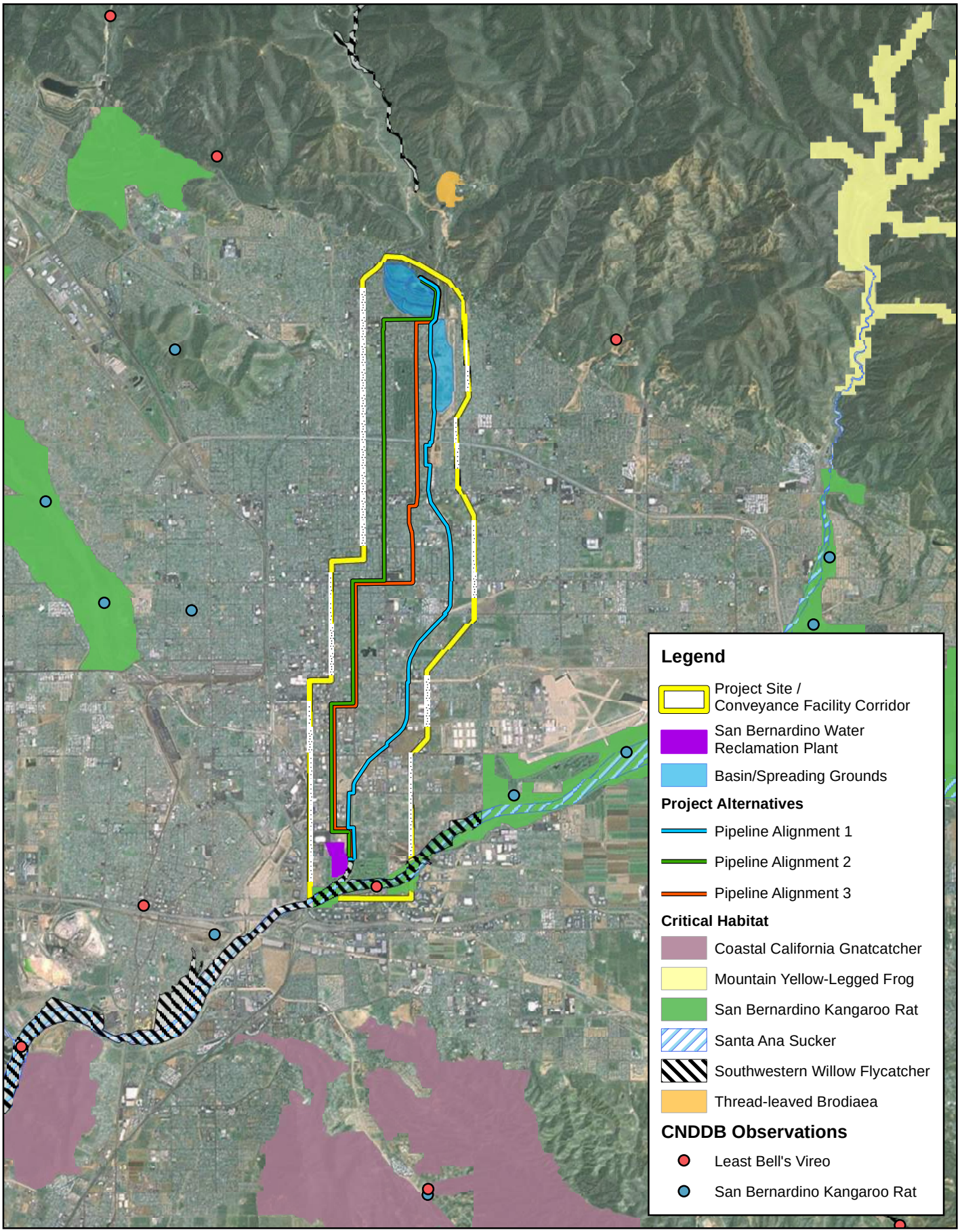
5.7.3 Sensitive Habitats

The CNDDB lists five sensitive habitats as having the potential to occur within the San Bernardino North and San Bernardino South USGS quadrangles: Riversidean Alluvial Fan Sage Scrub, Southern Cottonwood Willow Riparian Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub. Of these five habitats, only one was observed within the facility corridor, a Southern Willow Scrub plant community in the upper portion of the Waterman Spreading Grounds.

5.7.4 Critical Habitat

Critical Habitat refers to specific areas within the geographical range of a species at the time it is listed that include the physical or biological features that are essential to the survival and eventual recovery of that species. Maintenance of these physical and biological features requires special management considerations or protection, regardless of whether individuals or the species are present or not. Designated Critical Habitat for southwestern willow flycatcher (*Empidonax traillii extimus*), SBKR, and Santa Ana sucker occurs within the project site (Exhibit 6, *Critical Habitat*).

The southwestern willow flycatcher Critical Habitat Santa Ana Management Unit encompasses an area of the Santa Ana River beginning at Tippecanoe Avenue and extending southwest to the county line (70 FR 60886 61009). It also includes the last 0.67 mile of East Twin Creek prior to its confluence with the Santa Ana River; this portion of East Twin Creek is still directly adjacent to Alignment 1, and portions of both water bodies are contained within the facility corridor. The Santa Ana Management Unit includes dynamic riparian habitat (PCE 1) and also contains a variety of insects for population growth (PCE 2).



5/29/2015 JN M:\Mdata\131284\MXD\Habitat Assessment\06 Critical Habitat.mxd AP

Michael Baker INTERNATIONAL

0 0.75 1.5 3 Miles

Source: San Bernardino County, USFW Critical Habitat Portal, ESRI World Topographic Map

CLEAN WATER FACTORY
HABITAT ASSESSMENT

Critical Habitat

Exhibit 6

SBKR Critical Habitat Unit 1, Santa Ana River and Wash, is located within the Santa Ana River Watershed from the Seven Oaks Dam to South E Street; it also includes portions of Mill, City, and Plunge Creeks (67 FR 19812 19845). The last 1.2 miles of this unit are included within the facility corridor. Unit 1 includes sandy soils (PCE 1); alluvial vegetation (PCE 2); and river and creek channels, floodplain terraces, channels subject to fluvial processes, and upland habitat immediately adjacent to the terraces (PCEs 3 and 4). SBKR Critical Habitat is not expected to be affected by project implementation, as it terminates south of the treatment plant, outside of Critical Habitat, at the western edge of the facility corridor and upstream of the RIX facility.

Santa Ana sucker Critical Habitat Subunit 1B, Santa Ana River, extends from South Tippecanoe Avenue within the Santa Ana River southwest to the Prado Flood Control Basin (75 FR 77962 78027). Portions of it extend into the facility corridor. Unit 1B contains sources of water and coarse sediment as well as areas that can be used for spawning and rearing of fry and juvenile fish (PCE 1); gravel, cobble, and sand substrates (PCE 2); and a riparian overstory and shallow-water refuges for cover (PCE 6). With reduction of discharge from the RIX facility, this area will be affected by project implementation. A separate low flow study is investigating the potential impact to Santa Ana sucker from project implementation.

Thread-leaved brodiaea Critical Habitat Unit 2, Arrowhead Hot Springs, is located approximately 0.75 mile north of the facility corridor immediately north of Arrowhead Hot Springs Lake (76 FR 6848 6925). Unit 2 is underlain by soils altered by hydrothermal activity (PCE 1B) and contains areas with a naturally, generally intact surface and subsurface soil structure that support this species as well as pollinator habitat (PCE 2). This area is not expected to be affected by project implementation.

LBV designated Critical Habitat, the Santa Ana River unit, is located over nine miles southwest of the facility corridor, from approximately Rubidoux Avenue at the Santa Ana River to the Prado Flood Control Basin (59 FR 4845 4867). Critical Habitat was designated in 1994 and has not been updated since that time. It is expected that this area provides all the PCEs needed by LBV, which include riparian woodland vegetation generally containing both canopy and shrub layers (particularly willow-dominated riparian woodlands with a dense understory that is maintained by periodic flooding), as well as associated upland habitats such as coastal sage scrub or chaparral.

Section 6 Discussion of Impacts and Mitigation

The discussion below provides a summary of survey results; avoidance and minimization efforts; direct, indirect, and cumulative project impacts; and compensatory mitigation measures for each biological resource area required to be analyzed according to the California Environmental Quality Act (CEQA), based on Appendix G (Environmental Checklist Form) of the CEQA Guidelines.

CEQA Threshold*: Would the proposed Project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the U.S. Fish and Wildlife Service?*

Species determined to have the potential to occur within the general vicinity are presented in Appendix A, Sensitive Habitats and Potentially Occurring Sensitive Plant and Wildlife Species. The following analysis is restricted to those species that, based on habitat requirements and known distribution, are expected to have a moderate or higher potential to occur.

6.1 LISTED PLANT SPECIES

Based on Michael Baker's habitat assessment and focused surveys, there are no federally or State listed plant species known or expected to occur within the facility corridor. All federally or State listed plants are presumed absent or are expected to have a low potential to occur.

6.2 SPECIAL-STATUS PLANT SPECIES

Survey Results

Only one special-status plant species was identified during a CNDDB and CNPS search as having moderate or higher potential to occur: Parry's spineflower. Parry's spineflower was found within the Waterman Spreading Grounds in 1993; due to ongoing maintenance activities, only marginal habitat occurs in the Waterman Spreading Grounds and East Twin Creek Spreading Grounds, with the best habitat being in the lower basins where vegetation is less disturbed. This species was not observed during a habitat assessment in 2014 or during focused sensitive plant surveys conducted in the Waterman Spreading Grounds in 2015.

Avoidance and Minimization Measures

Most of the proposed project area does not contain suitable habitat for Parry's spineflower. However, the Waterman Spreading Grounds and East Twin Creek Spreading Grounds do contain marginal habitat. These areas would not be avoided by the project, as development of the existing basin area is an integral part of the proposed project. A sensitive plant survey will be conducted in

2015 during the blooming period to determine whether this plant or other sensitive plant species are present within the project area.

Direct and Indirect Project Impacts

Direct or indirect impacts could occur to special-status plant species, if present, as a result of project implementation. Excavation and fill for pipelines could result in the loss of sensitive plant species, as could excessive flooding if plants are present in the areas that are proposed to receive treated water for groundwater recharge. Construction activity could result in the spread of fugitive dust throughout the construction area or of non-native weed seeds via clothing, tires, or vehicle undercarriages. In addition, vehicle travel and pedestrian foot traffic within the project boundaries could result in the trampling of plant species. Excavation and fill for the pipeline could cause changes to soil compaction levels, potentially changing the microhabitat that plants depend upon and changing plant compositions.

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant if implemented:

> **BIO-1**: All work areas shall be visibly flagged or staked prior to construction. Construction activities shall be limited to these approved work areas except with prior authorization from regulatory agencies.
>
> **BIO-2**: A Worker Environmental Awareness Program (WEAP) shall be implemented to educate all construction personnel of the area's environmental concerns and conditions, including special-status species, and relevant environmental protection measures. The WEAP will constitute the conveyance of environmental concerns and appropriate work practices, including spill prevention, emergency response measures, protection of sensitive resources, and proper implementation of BMPs, to all construction and maintenance personnel. All new workers that arrive after construction has started shall be trained under the WEAP within two days' time.
>
> **BIO-3**: A qualified biologist or botanist shall conduct a preconstruction clearance survey for special-status plant species within suitable habitat in the project site. If present, any special-status plants shall be clearly flagged for avoidance with a suitable buffer zone during construction. If avoidance is not possible, the project applicant will discuss potential relocation strategies with applicable regulatory agencies.
>
> **BIO-4**: Prior to construction, all heavy equipment that will be left on-site in laydown yards shall be washed offsite and cleaned of all potential non-native weed seeds. Worker trucks

shall be washed daily if they will be driven offroad or shall otherwise be left parked in laydown yards or on existing roads during construction.

BIO-5: All excavated material shall be removed from the project site and disposed of properly or reused elsewhere. If left on-site, the material shall be moved into an area where it will not wash or erode into any riparian areas and shall be suitably covered or watered to reduce the potential for dust during high winds or rain events.

6.3 LISTED WILDLIFE SPECIES

This project is likely to result in both direct construction impacts and indirect operational impacts, with some listed wildlife species only indirectly affected. The species below are distinguished between those that could be directly or indirectly affected by the project and those that would only be indirectly affected by the post-construction operations phase of the project.

6.3.1 SPECIES THAT WILL BE DIRECTLY AFFECTED

The following species could be directly affected by construction-related activity. Direct impacts would be expected as a result of construction activity, i.e. activity related to heavy equipment, project personnel, or the building of new facilities. Some of these impacts may extend into the operational phase of the project (e.g., construction-related habitat loss) or may only occur indirectly after construction (e.g. operations-related habitat loss), but the potential for most direct impacts (e.g., temporary displacement due to noise) would otherwise begin at the time of construction and end when construction is complete.

6.3.1.1 San Bernardino Kangaroo Rat

Survey Results

This species is known to occur in and around streambeds that support Riversidean Alluvial Fan Sage Scrub habitat subject to fluvial scouring. There are numerous CNDDB records of this species within the Lytle Creek and Santa Ana River Washes in the general project vicinity. The closest CNDDB record of this species is on the San Bernardino International Airport (formerly Norton Air Force base) approximately 1.9 miles east of Alternative 1 and 1.2 miles east of the project boundary. There is marginal habitat for this species in the upper portion of the facility corridor in the Waterman Spreading Grounds. SBKR Critical Habitat Unit 1, Santa Ana River and Wash, runs along the Santa Ana River from the Seven Oaks Dam to South E Street; it also includes portions of Mill, City, and Plunge Creeks (refer to Exhibit 6). According to the SBCFCD, SBKR has been documented in the Waterman Spreading Grounds in the past. However, focused trapping surveys in the Waterman Spreading Grounds conducted in August 2015 found no sign of SBKR.

Avoidance and Minimization Efforts

SBKR is known to occur in the general area, particularly in and around the Lytle Creek Wash; it has also been previously detected in the Waterman Spreading Grounds. The project is designed to avoid areas of known occurrences by staying primarily in urban and/or developed areas. Marginal habitat for this species located in the upper portion of the site in the Waterman Spreading Grounds and East Twin Creek Spreading Grounds has a low potential to support this species. The habitat assessment conducted by Michael Baker in August 2014 (refer to Section 5.7.2.3) noted sign of kangaroo rats but assumed the species present was Dulzura kangaroo rat. Focused SBKR surveys were conducted in August 2015 and were negative.

Direct Impacts

Based on trapping efforts conducted in August 2015 in the Waterman Spreading Grounds, SBKR is determined to currently be absent from the project site and no direct impacts are currently expected. However, SBKR may reestablish in the project site in the future, particularly in the Waterman Spreading Grounds. If SBKR are determined to be present at a future point, the project could eventually result in decreased habitat from the increase in flooding. If present in either the Waterman Spreading Grounds or East Twin Creek Spreading Grounds, SBKR burrows could be flooded and individual SBKR lost. SBKR individuals could also be displaced by the regular influx of water.

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant with mitigation incorporated:

BIO-1:Refer to Section 6.2 for the full text of this mitigation measure.

BIO-2: Refer to Section 6.2 for the full text of this mitigation measure.

BIO-6: A permitted biologist shall conduct protocol-level trapping within the Waterman Spreading Grounds and East Twin Creek Spreading Grounds to determine the presence or absence of SBKR on the project site. If SBKR are caught during these trapping surveys, the project applicant will be required to consult with USFWS for an incidental take permit.

6.3.1.2 Least Bell's Vireo

Survey Results

LBV was not observed during Michael Baker's habitat assessment. However, the SBCFCD has documented LBV in the Waterman Spreading Grounds. This species is also known to occur within the riparian habitat along the SAR and its tributaries. The CNDDB shows a 2013 sighting of a family unit within the facility corridor, just upstream of the confluence of the Santa Ana River and East Twin Creek. This record is approximately 0.4 mile east of the SBWRP but is approximately

5.5 and 6.6 miles south of the East Twin Creek Spreading Grounds and Waterman Spreading Grounds, respectively. The closest CNDDB record to the Waterman Spreading Grounds is a 2008 sighting of two males outside of the facility corridor in Badger Canyon approximately 2.25 and 3.1 miles northwest of the Waterman Spreading Grounds and East Twin Creek Spreading Grounds, respectively. LBV designated Critical Habitat, the Santa Ana River unit, is located over 9 miles southwest of the facility corridor (59 FR 4845 4867). Focused surveys by Michael Baker within the Waterman Spreading Grounds in summer 2015 identified one male LBV on-site. This individual was only detected during one survey, and no other indications of LBV presence or nesting were found during the remainder of the focused survey effort.

Avoidance and Minimization Efforts

This species was documented at the southern end of the facility corridor in 2013 within suitable habitat in the SAR. In addition to habitat in the SAR, there is also a small patch of Southern Willow Scrub that provides suitable habitat for LBV in the Waterman Spreading Grounds; LBV has previously been documented in these basins. Any necessary construction near this vireo habitat would be timed to be outside of the season in which LBV is present (generally mid-March to mid-September); if this is not possible, focused surveys in suitable habitat near work areas may be necessary prior to any construction.

Direct Project Impacts

If LBV are found to be breeding in the project's construction footprint, there could be direct effects from the construction activities and/or from vegetation removal. Impacts would include displacement, disruption of breeding/nesting activities, and mortality.

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant with mitigation incorporated:

BIO-1:Refer to Section 6.2 for the full text of this mitigation measure.

BIO-2: Refer to Section 6.2 for the full text of this mitigation measure.

BIO-7: All construction shall occur outside of the avian breeding season (generally February 1 – August 30). If construction occurs during the avian breeding season, a qualified biologist shall conduct a preconstruction nesting bird clearance survey in all work areas and all areas within 500 feet of the general construction zone. This shall occur no more than one week prior to construction. Active nests shall be given an avoidance buffer, typically 300 feet for non-listed, non-raptor species, and 500 feet for listed and raptor

species. This buffer shall remain in place until the young fledge or the nest otherwise becomes inactive, and may be reduced with approval from CDFW and/or USFWS.

BIO-8: If construction is scheduled to occur during the avian breeding season, a qualified biologist or ornithologist shall perform protocol LBV surveys in suitable habitat prior to the start of construction. The surveys shall last for the entire survey period of eight surveys between April 10 and July 31 unless LBV is observed prior to survey completion or the surveys are otherwise concluded by USFWS and/or CDFW. Survey results shall be reported to the City of San Bernardino Municipal Water Department, USFWS, and CDFW. If this species is found during surveys, nest protection measures for listed species as described in BIO-7 shall be incorporated.

6.3.2 SPECIES THAT WILL BE INDIRECTLY AFFECTED

The following species may be indirectly affected by project-related operational activities, primarily reduced discharges into the SAR downstream of the project site. These impacts would not occur until after construction is complete and the project is in the implementation phase, and could continue to occur indefinitely as long as the project is in operation.

6.3.2.1 San Bernardino Kangaroo Rat

Survey Results

SBKR was not observed during Michael Baker's habitat assessment. This species is known to occur in and around streambeds covered in Riversidean Alluvial Fan Sage Scrub that experience fluvial scouring. There is marginal habitat for this species in the upper portion of the project footprint but impacts are not likely to occur. According to the SBCFCD, SBKR has been documented in the Waterman Spreading Grounds. SBKR Critical Habitat Unit 1, Santa Ana River and Wash, runs along the Santa Ana River. Trapping was conducted in the Waterman Spreading Grounds in August 2015 and no SBKR were found.

Avoidance and Minimization Efforts

This species is known to occur in the general area, particularly in and around the Lytle Creek Wash and the SAR. It has also been previously documented in the Waterman Spreading Grounds. The project is designed to avoid areas of known SBKR occurrences by staying primarily in urban and/or developed areas. Marginal habitat for this species is located in the upper portion of the site in the Waterman Spreading Grounds and East Twin Creek Spreading Grounds. SBKR has a moderate potential to occur within the project footprint, although it is currently presumed to be absent based on the trapping that was conducted in August 2015.

Indirect Impacts

If present in the future in either the Waterman Spreading Grounds or East Twin Creek Spreading Grounds, kangaroo rat burrows could be flooded and/or rats could be displaced by the regular influx of water. Indirect effects to SBKR would also occur in the Santa Ana River, if reduced flows result in increases and/or decreases the amount of avoidable SBKR habitat in the downstream areas of the SAR.

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant with mitigation incorporated:

BIO-1:Refer to Section 6.2 for the full text of this mitigation measure.

BIO-2: Refer to Section 6.2 for the full text of this mitigation measure.

6.3.2.2 Santa Ana Sucker

Survey Results

Based on annual monitoring of Santa Ana sucker populations within the SAR by San Marino Environmental Associates (SMEA 2010), this species is present in several known locations in an 8.7-mile length of the Santa Ana River between the Rialto Drain and the Metropolitan Water District crossing (GEI 2014). It is currently most common in the upper portions of this stretch (near the Rialto Drain downstream to Riverside Avenue), where deeper water and gravelly substrates are more conducive to its habitat needs. Santa Ana sucker Critical Habitat Subunit 1B, Santa Ana River, extends from South Tippecanoe Avenue within the Santa Ana River southwest to the Prado Flood Control Basin (75 FR 77962 78027) (refer to Exhibit 6).

Avoidance and Minimization Efforts

This species occurs in the Santa Ana River but is not known to occur within East Twin Creek, which is almost entirely contained within a cement channel within the facility corridor and holds little to no water during most of the year. This creek and others, such as Warm Creek, would not be directly impacted by construction. BMPs would be designed to avoid or reduce any sedimentation within all water bodies. Portions of the Santa Ana River upstream of the RIX facility are not expected to be directly affected.

Indirect Project Impacts

While direct impacts to Santa Ana sucker are not expected during construction, indirect operational impacts may occur in the Santa Ana River as a result of reduced discharges for RIX into the Santa Ana River. Potential indirect impacts that may occur from reduced flow as a result of the project

include the long-term loss of in-stream habitats due to reduced water availability, reduction of exposed gravel beds due to reduced water velocity and associated sand transport, increased water temperature, increased stress, reduced fitness, reduced survivorship of eggs, and loss and/or degradation of riparian habitat along the SAR due to a reduction in water. Hydrologic modeling by Wildermuth Environmental, Inc., habitat modeling conducted by GEI Consultants, Inc. (GEI), and sediment transport modeling by Michael Baker have been conducted to assess potential impacts of low flow conditions on SASU habitat. These studies are being prepared under separate cover. The data from this SASU habitat assessment will be incorporated into the habitat assessment once the data are available.

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant with mitigation incorporated:

BIO-1:Refer to Section 6.2 for the full text of this mitigation measure.

BIO-2: Refer to Section 6.2 for the full text of this mitigation measure.

BIO-9: The project applicant shall develop and implement an adaptive management program (AMP) for post construction operations. This plan will be incorporated indefinitely until the project facilities are no longer in use or until deemed no longer necessary by applicable regulatory agencies. The AMP is intended to monitor and protect the SAR and any additional riparian habitats adjacent to the project site and, by extension, protect the species that inhabit it. The primary goal of the AMP would be to monitor the response of these habitats to the proposed project and, based on any noted changes in these habitats, to implement adaptive management measures to correct the noted changes if needed. This would require establishing baseline conditions of both aquatic and riparian habitats and associated species, and conducting biological monitoring to track positive and negative changes.

6.3.2.3 Arroyo Chub

Survey Results

Focused arroyo chub surveys have not been conducted yet for this project. According to CNDDB records, this species is present in the Santa Ana River downstream of the project site, with the closest record being a 1998 sighting of multiple individuals approximately three miles south. This area downstream of the project site and upstream of the RIX facility is an intermittent stream that currently does not provide habitat for arroyo chub. This species is most likely to occur further downstream of the RIX facility where there are sandier substrates as opposed to the gravelly substrates of the upstream areas (near RIX), where Santa Ana sucker is currently more common.

Avoidance and Minimization Efforts

This species occurs in the Santa Ana River but is unlikely to occur within the project area, which is almost entirely contained within a cement channel within the facility corridor and holds little to no water during most of the year. This creek and others, such as Warm Creek, would not be directly impacted by construction. BMPs would be designed to avoid or reduce any sedimentation within all water bodies.

Indirect Impacts

While direct impacts to arroyo chub are not expected during construction, indirect operational impacts may occur as a result of the reduced water flow to the SAR. Reductions in water flow may result in decreased river depth, particularly along the shallow edges. This could result in reduced habitat availability for chubs, which typically require water depths of at least 40 centimeters (1.33 feet) (Moyle 1995). Further analysis of potential indirect impacts will be conducted once the low flow studies are completed by WEI, GEI and Michael Baker.

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant with mitigation incorporated:

BIO-1:Refer to Section 6.2 for the full text of this mitigation measure.

BIO-2: Refer to Section 6.2 for the full text of this mitigation measure.

BIO-9: Refer to Section 6.3.2.2 for the full text of this mitigation measure.

6.4 SPECIAL-STATUS WILDLIFE SPECIES

Survey results

Only one non-listed special-status wildlife species was observed during Michael Baker's habitat assessment: yellow warbler (*Setophaga petechia brewsteri*). In addition, based on a CNDDB search, six additional non-listed special-status wildlife species were determined to have a moderate or higher potential to occur within the project site: northwestern San Diego pocket mouse, rosy boa, California horned lark, western yellow bat, Los Angeles pocket mouse, and coast horned lizard. Project-related surveys for these species have not yet been conducted. All six of these additional species are known to occur in the general vicinity of the project based on available CNDDB records.

Avoidance and Minimization Measures

Most of the seven aforementioned non-listed special-status wildlife species have a moderate or higher potential to occur in areas that could be directly affected by the project construction. Yellow warbler would forage and nest in the summer in riparian trees which would likely be mostly avoided. Horned larks typically occur in disturbed open spaces, including fields, bare ground, and lawns. They could potentially occur within the Waterman Spreading Grounds or East Twin Creek Spreading Grounds, but due to vegetation coverage and creek-related disturbance these areas may not meet their optimal habitat preferences. Western yellow bats in California are tied to palm trees for roosting habitat but will forage over water and may be found foraging in the basins or spreading grounds. Their roosting habitat (i.e. palm trees) is not expected to be affected. Northwestern San Diego pocket mouse, rosy boa, Los Angeles pocket mouse, and coast horned lizard could occur in the Waterman Spreading Grounds and East Twin Creek Spreading Grounds. Because of the project design, these two areas cannot be avoided from impacts. However, preconstruction surveys, trapping and relocation, and use of avoidance buffers will help to minimize impacts to these four species.

Direct and Indirect Impacts

Direct construction-related impacts to special-status wildlife species are expected to be minor during construction, although indirect operational impacts could potentially be significant. Direct impacts could occur to animals within the Waterman Spreading Grounds or East Twin Creek Spreading Grounds, particularly terrestrial wildlife. Construction near trees may result in disturbance to nesting birds or roosting bats, potentially resulting in increased stress or nest failure. In extreme situations, excessive disturbance may cause individual animals to leave the area, temporarily or permanently. Both of the pocket mice dig burrows in the sand for shelter, while rosy boas may use subterranean burrows but often will use existing surface shelter for cover. Similarly, horned lizards bury themselves in the sand and are generally on the surface or immediately below it while buried. All four species could be displaced due to project-related flooding.

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant with mitigation incorporated:

BIO-1:Refer to Section 6.2 for the full text of this mitigation measure.

BIO-2: Refer to Section 6.2 for the full text of this mitigation measure.

BIO-6: Refer to Section 6.3.1.2 for the full text of this mitigation measure.

BIO-10: All construction shall occur between dawn and dusk.

BIO-11: In areas adjacent to riparian habitat, construction noise shall be minimized to the amount necessary to avoid or reduce the risk of adverse impacts to wildlife.

BIO-12: In areas within 100 feet of riparian habitat, BMPs shall be implemented. These should include, but are not limited to, sedimentation control, erosion control, spill prevention and cleanup, and hazardous materials.

CEQA Threshold: *Would the proposed Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?*

CEQA Threshold: *Would the proposed Project 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?*

6.5 RIPARIAN HABITAT AND WETLANDS

Survey Results

The facility corridor contains several intermittent creeks, including East Twin Creek, City Creek, and Warm Creek, as well as the Santa Ana River, which runs within the southern end of the corridor. There are no wetlands within the facility corridor, and no plants characterized as obligate-wetland species were observed. A jurisdictional delineation is currently being conducted to quantify potentially jurisdictional areas and will be released under separate cover. However, direct impacts are anticipated to be minimal or non-existent for riparian and wetland habitats.

Avoidance and Minimization Efforts

No construction is currently scheduled to occur within any streambeds or within the terrestrial extent of the adjacent riparian vegetation. There will be no direct impacts to riparian habitat. Alternative 1 is proposed to be constructed alongside East Twin Creek but is restricted to upland areas; most of East Twin Creek, particularly between Marshall Boulevard and Mill Street, is in a cement channel and does not contain any riparian substrate or vegetation. Riparian habitat is present north of Marshall and south of Mill; pipeline placement would be sited to minimize impacts to riparian vegetation in these areas by remaining in the banks—primarily vegetated by Russian thistle—rather than the streambed. Nearby construction would be shielded from riparian vegetation through the implementation of BMPs.

Direct Impacts

Direct construction impacts to riparian habitat are not expected to occur. Direct impacts to riparian habitat can be avoided through project design changes.

Indirect Impacts

Potential indirect operational impacts could occur as a result of project implementation, particularly to riparian habitat along the Santa Ana River. However, due to the phased flow reduction characteristic of the project, habitat loss along the river from reduction in discharge will be negligible for the first three phases or 15 years. The project would eventually result in a reduction in tertiary discharge to the Santa Ana River of approximately 35 cubic feet per second or 23.8 million gallons per day (mgd). This could result in loss and/or degradation of riparian habitat, particularly in drought years. A reduction in habitat and vegetation would also have negative effects on riparian wildlife, including fish, amphibians, birds, and even some mammals.

In the dry season, plants can become stressed more easily during low water conditions. While phreatophytic (vegetation that draws water from both above and below the surface) and more drought-tolerant vegetation like Fremont's cottonwood, willows (*Salix* sp.), and mulefat may persist longer under dryer conditions, shallow-rooted and streamside vegetation would be expected to be more susceptible to general reductions in water levels (Stromberg et al. 2007). Additionally, nutrient-cycling organic litter decomposition that is normally aided by downstream water movement may be reduced by low surface flows (Nilsson and Svedmark 2002).

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant with mitigation incorporated:

BIO-1:Refer to Section 6.2 for the full text of this mitigation measure.

BIO-9: Refer to Section 6.3.2.3 for the full text of this mitigation measure.

BIO-12: Refer to Section 6.4 for the full text of this mitigation measure.

BIO-13: The project Applicant shall consult with the Corps, CDFW, and Regional Board regarding potential impacts, direct and indirect, and determine required mitigation once the final project design is available. If impacts are anticipated to occur to instream and riparian habitats, wetland permits may be required from these agencies.

CEQA Threshold: *Would the proposed Project 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?*

6.6 WILDLIFE CORRIDORS

Survey Results

The facility corridor is not expected to function as a migratory corridor. However, the Santa Ana River, outside the project area, provides migration and movement opportunities for fish, birds, and mammals.

Avoidance and Minimization Efforts

The Santa Ana River will be avoided and is not expected to have any direct construction impacts.

Direct and Indirect Project Impacts

No direct construction impacts to migration corridors are expected to occur as a result of project implementation. Reduction in discharge from the RIX facility may result in minor indirect operational impacts to wildlife corridors on the Santa Ana River through the loss of wetted width. GEI and Michael Baker are currently conducting an assessment of in-stream and riparian habitat loss from reduced flows in the SAR. Data from this assessment will be incorporated into the habitat assessment once it is available.

Movement of birds and mammals is thus unlikely to be affected by significant reductions in riparian vegetation that would otherwise be used for cover.

Mitigation

The following mitigation measures are proposed to reduce project impacts to less than significant with mitigation incorporated:

BIO-1:Refer to Section 6.2 for the full text of this mitigation measure.

BIO-2: Refer to Section 6.2 for the full text of this mitigation measure.

BIO-8: Refer to Section 6.3.2 for the full text of this mitigation measure.

BIO-13: Refer to Section 6.4 for the full text of this mitigation measure.

CEQA Threshold: *Would the proposed Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

6.7 LOCAL POLICIES AND ORDINANCES

The proposed project could conflict with local policies and ordinances, including the San Bernardino County Development Code and the City of San Bernardino General Plan. Depending on the types of trees that may need to be removed for construction (if applicable), the applicant would be required to obtain a tree removal permit under Sections 88.01.050, 88.01.070, and/or 88.01.080 of the San Bernardino County Development Code. The project may conflict with Policy 12.2.1 of the City of San Bernardino General Plan, which prohibits any development or grading within 50 feet of riparian corridors. The applicant would be required to obtain a permit as a "necessary water supply project" under Policy 12.2.2, which states what types of uses are allowed within riparian corridors in exception to Policy 12.2.1.

CEQA Threshold: *Would the proposed Project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan?*

6.8 LOCAL, REGIONAL, AND STATE PLANS

The proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state Habitat Conservation Plan. There are currently no approved Habitat Conservation Plans that pertain to the project site.

Section 7 Conclusion and Recommendations

The project site consists of an urbanized city, several channelized creeks, and two separate series of retention basins. Extensive urban development is located in the general surrounding area, particularly to the south, west, and east of the project site, with more natural areas (San Bernardino National Forest) located immediately to the north of the site. No special-status plant species were observed on-site; yellow warbler and coastal whiptail were observed during the habitat assessment. Although a jurisdictional delineation has not been finalized for this project, several jurisdictional features are present within the facility corridor.

Sensitive Plants

No sensitive plants were observed during the habitat assessment. The project site has a moderate potential provide suitable habitat for Parry's spineflower and a low potential to support thread-leaved brodiaea, Plummer's mariposa lily, smooth tarplant, slender-horned spineflower, Santa Ana River woollystar, mesa horkelia, California satintail, Robinson's pepper-grass, and Parish's desert-thorn. Sensitive plant surveys were conducted in the Waterman Spreading Grounds during the 2015 blooming season; no sensitive plants were found.

Sensitive Wildlife

Two (2) sensitive wildlife species were observed during the habitat assessment: yellow warbler and coastal whiptail. In addition, the project site has a moderate potential to provide suitable habitat for rosy boa, coast horned lizard, California horned lark, LBV, northwestern San Diego pocket mouse, San Bernardino kangaroo rat, western yellow bat, and Los Angeles pocket mouse. There is a low potential to support orangethroat whiptail, burrowing owl, Swainson's hawk, Busck's gallmoth, red-diamond rattlesnake, San Bernardino ringneck snake, western mastiff bat, San Diego black-tailed jackrabbit, San Diego desert woodrat, coastal California gnatcatcher, American badger, and two-striped garter snake. Kangaroo rat trapping surveys are recommended prior to construction in suitable habitat, as are LBV surveys if construction will occur near suitable habitat during the nesting season. Trapping was conducted for SBKR in August 2015 in the Waterman Spreading Grounds; no SBKR were found and this species is presumed to be currently absent from this area. Focused LBV surveys were conducted in June and July 2015 in the Waterman Spreading Grounds; one male LBV was found on-site during one survey, with no additional detections during the remainder of the survey effort and no evidence of active nesting.

Migratory Bird Treaty Act and Fish and Game Code

Nesting birds are protected pursuant to the Migratory Bird Treaty Act and Fish and Game Code (Sections 3503, 3503.3, 3511, and 3513 of the Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs). In order to protect migratory bird species, nesting bird clearance surveys need to be conducted prior to any vegetation removal or development that may

disrupt the birds during the nesting season. Consequently, if avian nesting behaviors are disrupted, such as nest abandonment and/or loss of reproductive effort, it is considered "take" and is potentially punishable by fines and/or imprisonment.

If ground-disturbing activities or removal of any trees, shrubs, or any other potential nesting habitat are scheduled within the avian nesting season (nesting season generally extends from February 1 - August 31, but can vary from year to year based upon seasonal weather conditions), a pre-construction clearance survey for nesting birds should be conducted within 10 days prior to any ground disturbing activities to ensure that no nesting birds will be disturbed during construction. As long as development does not cause direct take of a bird or egg(s) or disrupt nesting behaviors, immediate protections would not be required. The biologist conducting the clearance survey should document a negative survey with a report indicating that no impacts to active avian nests will occur.

If an active avian nest is discovered during the pre-construction clearance survey, construction activities might have to be rerouted, a no-work buffer[8] might have to be established around the nest, or delayed until the young have fledged. If an active nest is observed it is recommended that a biological monitor be present to delineate the boundaries of the buffer area and to monitor the nest to ensure that nesting behavior is not adversely affected by the construction activity. Once the qualified biologist has determined that young birds have successfully fledged or the nest has otherwise become inactive (i.e. failed), a monitoring report shall be prepared and submitted to City of San Bernardino for review and approval prior to initiating construction activities within the buffer area. The monitoring report shall summarize the results of the nest monitoring, describe construction restrictions currently in place, and confirm that construction activities can proceed within the buffer area without jeopardizing the survival of the young birds. Construction within the designated buffer area shall not proceed until written authorization is received by the applicant from CDFW.

[8] The size of the buffer shall be determined by the biologist in consultation with CDFW, and shall be based on the nesting species, its sensitivity to disturbance, and expected types of disturbance. Typically these buffers range from 250 to 500 feet from the nest location.

Section 8 References

Bartlett, R.D. and P.P. Bartlett. *Guide and Reference to the Snakes of Western North America (North of Mexico) and Hawaii*. University Press of Florida: Gainesville, FL.

Benson, T. 2013. Birds on the CSUSB Campus. Available online at http://biology.csusb.edu/birds/.

Bolster, B.C., editor. 1998. Terrestrial Mammal Species of Special Concern in California. Draft Final Report prepared by P.V. Brylski, P.W. Collins, E.D. Pierson, W.E. Rainey and T.E. Kucera. Report submitted to California Department of Fish and Game Wildlife Management Division, Nongame Bird and Mammal Conservation Program for Contract No.FG3146WM.

Brown, T.K. 2009. Blainville's Horned Lizard. *In:* Jones, L.L.C. and R.E. Lovich, ed. *Lizards of the American Southwest*. Rio Nuevo Publishers: Tucson, AZ.

Burt, W.H., 1986. *A Field Guide to the Mammals in North American North of Mexico*. Houghton Mifflin Company, Boston, Massachusetts.

California Department of Conservation, California Geological Survey website, www.consrv.ca.gov.

California Department of Fish and Wildlife, 2014. RareFind 5, California Natural Diversity Data Base, California.

California Native Plant Society (CNPS), 2014. Inventory of Rare and Endangered Plants (online edition, v8-02). California Native Plant Society. Sacramento, CA. Accessed on Wednesday, October 5,2013.

City of San Bernardino (San Bernardino). 2005. City of San Bernardino General Plan. November 1, 2005.

Dunn, J. and Alderfer, J, 2012. Field Guide to the Birds of North America. National Geographic.

GEI Consultants, Inc. Ecological Division (GEI). 2014. Updated Revised Draft, Evaluation of the Phased RIX Flow Reduction Plan on Santa Ana Suckers, Based on Predicted Changes in Physical Habitat in the Santa Ana River, from the Rialto Drain to the MWD Crossing. April 2014. Not published.

Grinnell, J., 1933. *Review of the Recent Mammal Fauna of California*. University of California Publications in Zoology. 40:71-234.

Guzy, Gary S. and R. M. Andersen. 2001. Memorandum on Supreme Court ruling concerning CWA jurisdiction over isolated waters. U.S. EPA and U.S. Army Corps of Engineers.

Hall, E.R., 1981. *The Mammals of North America*, Volumes I and II. John Wiley and Sons, New York, New York.

Hickman, J.C., ed. 2012. *The Jepson Manual: Higher Plants of California*. University of California Press.

Holland, R. F. 1986. Preliminary descriptions of the Terrestrial Natural Communities of California. Calif. Dept. of Fish and Game, Sacramento, CA.

Ingles, L.G., 1965. *Mammals of the Pacific States*. Stanford University Press, Stanford, California.

Laudenslayer, Jr., W.F., W.E. Grenfell, Jr., and D.C. Zeiner, 1991. *A Checklist of the Amphibians, Reptiles, Birds and Mammals of California*. California Fish and Game 77:109-141.

Lemm, J.M. 2006. *Field Guide to Amphibians Reptiles of the San Diego Region*. University of California Press: Los Angeles, CA.

Moyle, P.B., R.M. Yoshiyaka, J.E. Williams, and E.D. Wikramanayake. 1995. Fish Species of Special Concern in California, Second Edition. Prepared for the State of California, The Resources Agency, Department of Fish and Game, Inland Fisheries Division, Rancho Cordova. Final Report for Contract No. 2128IF. June 1995.

Poole, A. (Editor). 2005. The Birds of North America Online: http://bna.birds.cornell.edu/BNA/. Cornell Laboratory of Ornithology, Ithaca, NY.

Remsen, Jr., J.V., 1978. *Bird Species of Special Concern in California*. Non-game Wildlife Investigations. Wildlife Management Branch Administrative Report No 78-1. Report prepared for the California Department of Fish and Game.

San Marino Environmental Associates (SMEA) 2010. SAWPA Santa Ana Sucker Population Monitoring 2001-2010.

Sherbrooke, W.C. 2003. *Introduction to Horned Lizards of North America*. University of California Press: Los Angeles, CA.

Skinner, M.W. and B.M. Pavlik, 1994. *Inventory of Rare and Endangered Vascular Plants of California*. California Native Plant Society, Spec. Pub. No. 1 (5th edition), Berkeley, California.

Southern California Association of Governments (SCAG). 2008. Final 2008 Regional Comprehensive Plan.

Stebbins, R.C., 1985. *A Field Guide to Western Reptiles and Amphibians*, Houghton Mifflin Company, Boston.

URS Corporation (URS). 2007. County of San Bernardino 2007 General Plan. Prepared for the County of San Bernardino.

U.S. Department of Agriculture, Natural Resources Conservation Service, *Web Soil Survey*. (http://websoilsurvey.nrcs.usda.gov/app/)

U.S. Fish and Wildlife Service, 1996. *Review of plant and animal taxa for listing as endangered or threatened species; notice of review.* Federal Register Vol. 61, No. 40.

U.S. Supreme Court (USSC). 2001. Court Decision on *Solid Waste Association of Northern Cook Counties v. United States Corps of Engineers* ("SWANCC"). January 9, 2001.

Williams, D.F., 1986. *Mammalian Species of Special Concern in California*. Wildlife Management Division Administrative Report 86-1. Prepared for The Resources Agency, California Department of Fish and Game.

This page intentionally left blank

Appendix A Sensitive Habitats and Potentially Occurring Sensitive Plant and Wildlife Species

This page intentionally left blank

Suitable Habitats and Potentially Occurring Sensitive Plant and Wildlife Species

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
WILDLIFE SPECIES				
Anniella pulchra pulchra silvery legless lizard	Fed: None CA: CSC	Occurs primarily in areas with sandy or loose loamy soils under sparse vegetation of beaches, chaparral, or pine-oak woodland; or near sycamores, oaks, or cottonwoods that grow on stream terraces. Often found under or in the close vicinity of logs, rocks, old boards, and the compacted debris of woodrat nests.	No	**Presumed absent**. There is no suitable habitat. This species requires moist soil to survive.
Aspidoscelis hyperythra orangethroat whiptail	Fed: None CA: CSC	Semi-arid brushy areas typically with loose soil and rocks, including washes, streamsides, rocky hillsides, and coastal chaparral.	No	**Low**. There is marginal habitat.
Aspidoscelis tigris stejnegeri coastal whiptail	Fed: None CA: CSC	Found in a variety of ecosystems, primarily hot and dry open areas with sparse foliage - chaparral, woodland, and riparian areas.	No	**Present**. This species was observed during the site assessment surveys.
Athene cunicularia burrowing owl	Fed: None CA: None	Occurs in open, annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. Dependent upon fossorial mammals for burrows, most notable ground squirrels.	No	**Low**. There is marginal habitat.
Batrachoseps gabrieli San Gabriel slender salamander	Fed: None CA: None	Occurs only in the San Gabriel Mountains. Often found under rocks, wood, fern fronds, and on soil at the base of talus slopes. Most active on the surface in winter and early spring.	No	**Presumed absent**. There is no suitable habitat and the project is out of this species' known range.
Buteo swainsoni Swainson's hawk	Fed: None CA: **THR**	Typical habitat is open desert, grassland, or cropland containing scattered, large trees or small groves. Breeds in stands with few trees in juniper-sage flats, riparian areas, and in oak savannah in the Central Valley. Forages in adjacent grassland or suitable grain or alfalfa fields or livestock pastures.	No	**Low**. There is marginal habitat. This species may occur in more open areas along the project but generally the habitat is not suitable.
Carolella busckana Busck's gallmoth	Fed: None CA: None	Occurs in coastal dunes and coastal scrub habitat.	No	**Low**. There is marginal habitat.
Catostomus santaanae Santa Ana sucker	Fed: **THR** CA: CSC	Occur in the watersheds draining the San Gabriel and San Bernardino Mountains of southern California. Streams that Santa Ana Sucker inhabit are generally perennial streams with water ranging in depth from a few inches to several feet and with currents ranging from slight to swift.	No	**Presumed absent**. There is no suitable habitat within the project site. This species is known to occur downstream of the project in the Santa Ana River.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Chaetodipus fallax fallax northwestern San Diego pocket mouse	Fed: None CA: CSC	Occurs in desert and coastal habitats in southern California, Mexico, and northern Baja California, from sea level to at least 1,400 meters above msl. Found in a variety of temperate habitats ranging from chaparral and grasslands to scrub forests and deserts. Requires low growing vegetation or rocky outcroppings, as well as sandy soils for burrowing.	No	**Moderate**. There is suitable habitat in the flood control basins.
Charina trivirgata rosy boa	Fed: None CA: None	Ranges from southern California and western Arizona in the United states, southward to Baja California and western Sonora in Mexico. Species often inhabits rocky areas in coastal sage scrub, chaparral, and desert environments.	No	**Moderate**. There is suitable habitat in the Waterman Basins.
Charina umbratica southern rubber boa	Fed: None CA: **THR**	Found in montane habitats, generally near streams and wet meadows. Burrows into soft, moist soil and takes refuge in rotting logs. Only known to occur in the San Bernardino and San Jacinto Mountains.	No	**Presumed absent**. There is no suitable habitat.
Coccyzus americanus occidentalis western yellow-billed cuckoo	Fed: **THR** CA: **END**	Obligate riparian species with a primary habitat association of willow-cottonwood riparian forest.	No	**Presumed absent**. There is no suitable habitat. This species requires large areas of riparian habitat.
Crotalus ruber red-diamond rattlesnake	Fed: None CA: CSC	It can be found from the desert, through dense chaparral in the foothills (it avoids the mountains above around 4,000 feet), to warm inland mesas and valleys, all the way to the cool ocean shore. It is most commonly associated with heavy brush with large rocks or boulders. Dense chaparral in the foothills, cactus or boulder associated coastal sage scrub, oak and pine woodlands, and desert slope scrub associations are known to carry populations of the northern red-diamond rattlesnake; however, chamise and red shank associations may offer better structural habitat for refuges and food resources for this species than other habitats.	No	**Low**. There is marginal habitat in the Waterman Basins.
Diadophis punctatus modestus San Bernardino ringneck snake	Fed: None CA: None	Occurs in moist areas near intermittent streams, usually in areas that are relatively rocky. Prefers to move through and take refuge in areas of herbaceous vegetation and leaf litter.	No	**Low**. There is marginal habitat around waterways but generally this species would be more likely to occur around montane habitats.
Dipodomys merriami parvus San Bernardino kangaroo rat	Fed: **END** CA: CSC	Primarily found in Riversidean alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidean upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidean alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No	**Moderate**. There is suitable habitat in the flood control basins.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Dipodomys stephensi Stephens' kangaroo rat	Fed: **END** CA: **THR**	Occur in arid and semi-arid habitats with some grass or brush. Prefer open habitats with less than 50% protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil.	No	**Presumed absent**. There is no suitable habitat.
Eremophila alpestris actia California horned lark	Fed: None CA: WL	Common to abundant resident in a variety of open habitats, usually where trees and large shrubs are absent. Breed in level or gently sloping shortgrass prairie, montane meadows, "bald" hills, open coastal plains, fallow grain fields, and alkali flats. In non-agricultural lands, it typically inhabits areas of short vegetation or bare ground, including shortgrass prairie, deserts, brushy flats, and alpine habitat. Within southern California, California horned larks breed primarily in open fields, (short) grasslands, and rangelands. Grasses, shrubs, forbs, rocks, litter, clods of soil, and other surface irregularities provide cover.	No	**Moderate**. There is suitable habitat. This species is often found in very disturbed grasslands or brushlands, and may also be found in city parks foraging in manicured lawns.
Euchloe hyantis andrewsi Andrew's marble butterfly	Fed: None CA: None	Occurs in the San Bernardino Mountains between 5,000 and 6,000 feet. Found in yellow pine forests near Lake Arrowhead and Big Bear Lake. Uses Laguna Mountains jewelflower (*Streptanthus bernardinus*) and Holboell's rockcress (*Arabis holboellii* var *pinetorum*) as hostplants, with larvae feeding on mountain tansy mustard (*Descuraina incana*).	No	**Presumed absent**. There is no suitable habitat.
Eumops perotis californicus western mastiff bat	Fed: None CA: CSC	Primarily a cliff-dwelling species, roost generally under exfoliating rock slabs. Roosts are generally high above the ground, usually allowing a clear vertical drop of at least 3 meters below the entrance for flight. In California, it is most frequently encountered in broad open areas. Its foraging habitat includes dry desert washes, flood plains, chaparral, oak woodland, open ponderosa pine forest, grassland, and agricultural areas.	No	**Low**. There is marginal habitat along the proposed routes.
Gila orcuttii arroyo chub	Fed: None CA: CSC (THR in native Range)	Warm streams of the Los Angeles Plain, which are typically muddy torrents during the winter, and clear quiet brooks in the summer, possibly drying up in places. They are found both in slow-moving and fast-moving sections, but generally deeper than 40 cm.	No	**Presumed absent**. There is no suitable habitat within the project site. This species is known to occur downstream of the project in the Santa Ana River.
Glaucomys sabrinus californicus San Bernardino Flying Squirrel	Fed: None CA: CSC	Occurs at elevation between 5,200 and 8,500 feet in the San Bernardino and San Jacinto Mountains in woodlands dominated by black oak (*Quercus kelloggii*) and white fir (*Abies concolor*). Requires cavities for nests, as well as nearby water.	No	**Presumed absent**. There is no suitable habitat.
Lasiurus xanthinus western yellow bat	Fed: None CA: CSC	Roosts in trees, especially palms, in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. This species forages over water and between trees.	No	**Moderate**. There is suitable habitat primarily in the Waterman Basins.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Lepus californicus bennettii San Diego black-tailed jackrabbit	Fed: None CA: CSC	Occurs in diverse habitats, but primarily is found in arid regions supporting shortgrass habitats. Openness of open scrub habitat is preferred over dense chaparral.	No	**Low**. There is marginal habitat in the Waterman Basins.
Neotoma lepida intermedia San Diego desert woodrat	Fed: None CA: CSC	Occurs in coastal scrub communities between San Luis Obispo and San Diego Counties. Prefers moderate to dense canopies, and especially rocky outcrops.	No	**Low**. There is marginal habitat in the Waterman Basins.
Nyctinomops femorosaccus pocketed free-tailed bat	Fed: None CA: CSC	Often found in pinyon-juniper woodlands, desert scrub, desert succulent shrub, desert riparian, desert wash, alkali desert scrub, Joshua tree, and palm oasis.	No	**Presumed absent**. There is no suitable habitat.
Onychomys torridus ramona southern grasshopper mouse	Fed: None CA: CSC	Inhabits prairies and the southwestern desert.	No	**Presumed absent**. There is no suitable habitat.
Perognathus longimembris brevinasus Los Angeles pocket mouse	Fed: None CA: CSC	Occurs in lower elevation grasslands and coastal sage scrub communities in and around the Los Angeles Basin. Prefers open ground with fine sandy soils. May not dig extensive burrows, but instead will seek refuge under weeds and dead leaves instead.	No	**Moderate**. There is suitable habitat in the flood control basins.
Phrynosoma blainvillii coast horned lizard	Fed: None CA: CSC	Occurs in a wide variety of vegetation types including coastal sage scrub, annual grassland, chaparral, oak woodland, riparian woodland and coniferous forest. In inland areas, this species is restricted to areas with pockets of open microhabitat, created by disturbance (i.e. fire, floods, roads, grazing, fire breaks). The key elements of such habitats are loose, fine soils with a high sand fraction; an abundance of native ants or other insects; and open areas with limited overstory for basking and low, but relatively dense shrubs for refuge.	No	**Moderate**. There is suitable habitat in the Waterman Basins and the upper basins of East Twin Creek.
Polioptila californica californica coastal California gnatcatcher	Fed: **THR** CA: CSC	Obligate resident of sage scrub habitats that are dominated by California sagebrush (*Artemisia californica*). This species generally occurs below 750 feet elevation in coastal regions and below 1,500 feet inland. Ranges from the Ventura County, south to San Diego County and northern Baja California and it is less common in sage scrub with a high percentage of tall shrubs. Prefers habitat with more low-growing vegetation.	No	**Low**. There is marginal habitat in the Waterman Basins.
Rana muscosa Sierra Madre yellow-legged frog	Fed: **END** CA: **END** CSC	Occurs in lower elevation habitats characterized by rocky streambeds and wet meadows, while higher elevation habitats include lakes, ponds, and streams. Occupy streams in narrow, rock-walled canyons. Often found along rock walls or vegetated banks and always within a few feet of the water.	No	**Presumed absent**. There is no suitable habitat.
Rhaphiomidas terminatus abdominalis Delhi Sands flower-loving fly	Fed: **END** CA: CSC	DSF habitat is limited to areas that include Delhi fine sand, an aeolian (wind-deposited) soil type. The highest density of DSF have been found in habitat that includes a variety of plants including California buckwheat, California croton, deerweed, and telegraph weed.	No	**Presumed absent**. There is no suitable habitat.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Rhinichthys osculus ssp. 3 Santa Ana speckled dace	Fed: None CA: CSC	Requires permanent flowing streams within summer water temperatures of 17 – 20 degrees Celsius. Inhabits shallow cobble and gravel riffles and small streams that flow through steep, rocky canyons with chaparral covered walls.	No	**Presumed absent**. There is no suitable habitat.
Taxidea taxus American badger	Fed: None CA: CSC	Primarily occupy grasslands, parklands, farms, tallgrass and shortgrass prairies, meadows, shrub-steppe communities and other treeless areas with sandy loam soils where it can dig more easily for its prey. Occasionally found in open chaparral (with less than 50% plant cover) and riparian zones.	No	**Low**. There is marginal habitat in the less-developed areas (i.e. the upper limits of the Project).
Thamnophis hammondii two-striped garter snake	Fed: None CA: CSC	Found in or near shallow or deep permanent sources of water, often around streams that have rocky streambeds and riparian growth.	No	**Low**. There is marginal habitat. This species generally requires permanent or semi-permanent water sources but could occur in the basins during an inundation period.
Vireo bellii pusillus least Bell's vireo	Fed: **END** CA: **END**	Primarily occupy Riverine riparian habitat that typically feature dense cover within 1 -2 meters of the ground and a dense, stratified canopy. Typically it is associated with southern willow scrub, cottonwood-willow forest, mule fat scrub, sycamore alluvial woodlands, coast live oak riparian forest, arroyo willow riparian forest, or mesquite in desert localities. It uses habitat which is limited to the immediate vicinity of water courses, 2,000 feet elevation in the interior.	No	**High**. There is a suitable patch of riparian habitat in the Waterman Basins and this species is known to occur in the Santa Ana River. A family unit was found in the river 0.5 mile from the project site in 2013.
PLANT SPECIES				
Ambrosia monogyra singlewhorl burrobrush	Fed: None CA: None CNPS: 2B.2	Chaparral and Sonoran desert scrub. From 33 to 1640 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Arenaria paludicola marsh sandwort	Fed: **END** CA: **END** CNPS: 1B.1	Occurs in freshwater marshes and swamps. From 33 to 558 feet in elevation.	No	**Presumed absent**. There is no suitable habitat and the project site is outside of the known elevation range of this species.
Astragalus hornii var. hornii Horn's milk-vetch	Fed: None CA: None CNPS: 1B.1	Occurs in meadows, seeps, and playas. From 197 to 2,789 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Berberis nevinii Nevin's barberry	Fed: **END** CA: **END** CNPS: 1B.1	Occurs on steep, north-facing slopes or in low-grade sandy washes in chaparral, cismontane woodland, coastal scrub, and riparian scrub. From 951 to 5,167 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Brodiaea filifolia thread-leaved brodiaea	Fed: **THR** CA: **END** CNPS: 1B.1	Occurs in openings on clay soils. Found in chaparral, cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal pools. From 82 to 3,675 feet in elevation.	No	**Low**. There is marginal habitat in the Waterman Basins. There are two CNDDB occurrences and a Critical Habitat unit just north of the basins.
Calochortus plummerae Plummer's mariposa-lily	Fed: None CA: None CNPS: 4.2	Prefers openings in chaparral, foothill woodland, coastal sage scrub, valley and foothill grasslands, cismontane woodland, lower montane coniferous forest and yellow pine forest. Often found on dry, rocky slopes and soils and brushy areas. Can be very common after a fire. From 328 to 5,577 feet in elevation.	No	**Low**. There is marginal habitat in the Waterman Basins.
Carex comosa bristly sedge	Fed: None CA: None CNPS: 2B.1	Found in marshes and swamps. From 0 to 2,051 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Castilleja lasiorhyncha San Bernardino Mountains owl's-clover	Fed: None CA: None CNPS: 1B.2	Occurs in mesic or drying sites along the edges of streams, meadows, and vernal pools. Found in meadows and seeps, pebble plains, upper montane coniferous forest, chaparral, and riparian woodland. From 4,265 to 7,841 feet in elevation.	No	**Presumed absent**. There is no suitable habitat and the project site is outside of the known elevation range of this species.
Centromadia pungens ssp. laevis smooth tarplant	Fed: None CA: None CNPS: 1B.1	Occurs in alkali meadow, alkali scrub, and disturbed areas within valley and foothill grassland, chenopod scrub, meadows, playas, and riparian woodland. From 3 to 2,100 feet in elevation.	No	**Low**. There is marginal habitat in the Waterman Basins and upper reaches of East Twin Creek.
Chloropyron maritimum ssp. maritimum salt marsh bird's-beak	Fed: **END** CA: **END** CNPS: 1B.2	Upper terraces and higher edges of coastal salt marshes where tidal inundation is periodic. From 0 to 98 feet in elevation.	No	**Presumed absent**. There is no suitable habitat and the project site is outside of the known elevation range of this species.
Chorizanthe parryi var. parryi Parry's spineflower	Fed: None CA: None CNPS: 1B.1	Occurs on sandy and/or rocky soils in chaparral, coastal sage scrub, and sandy openings within alluvial washes and margins. From 131 to 5,594 feet in elevation.	No	**Moderate**. There is suitable habitat and a 1993 occurrence of this species in the Waterman Basins.
Cuscuta obtusiflora var. glandulosa Peruvian dodder	Fed: None CA: None CNPS: 2B.2	Occurs in freshwater marsh and swamps. From 49 to 919 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Dodecahema leptoceras slender-horned spineflower	Fed: **END** CA: **END** CNPS: 1B.1	Chaparral, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes. From 656 to 2,493 feet in elevation.	No	**Low**. There is marginal habitat in the basins and spreading grounds. This species is known to occur in the general area.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	Fed: **END** CA: **END** CNPS: 1B.1	Coastal scrub, chaparral in sandy soils on river floodplains or terraces fluvial deposits. From 295 to 2,001 feet in elevation.	No	**Low**. There is marginal habitat in the basins and spreading grounds. This species is known to occur in the general area.
Fimbristylis thermalis hot springs fimbristylis	Fed: None CA: None CNPS: 2B.2	Occurs in alkaline meadows near hot springs. From 394 to 4,396 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Galium californicum ssp. primum Alvin Meadow bedstraw	Fed: None CA: None CNPS: 1B.2	Chaparral, lower montane coniferous forest between 4,429 and 5,577 feet in elevation.	No	**Presumed absent**. There is no suitable habitat and the project site is outside of the known elevation range of this species.
Helianthus nuttallii ssp. parishii Los Angeles sunflower	Fed: None CA: None CNPS: 1A	Occurs in marshes, swamps, and on damp river banks. From 33 to 5,495 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Horkelia cuneata var. puberula mesa horkelia	Fed: None CA: None CNPS: 1B.1	Occurs on sandy or gravelly soils in chaparral, woodlands, and coastal scrub plant communities. Most often on alluvial fans. From 230 to 2,657 feet in elevation.	No	**Low**. There is marginal habitat in the basins and spreading grounds.
Imperata brevifolia California satintail	Fed: None CA: None CNPS: 2B.1	Occurs in mesic sites, alkali seeps, and riparian areas within coastal scrub, chaparral, riparian scrub, Mojavean scrub, and alkali meadows and seeps. From 0 to 1,640 feet in elevation.	No	**Low**. There is marginal habitat in the Waterman Basins.
Lepidium virginicum var. robinsonii Robinson's pepper-grass	Fed: None CA: None CNPS: 1B.2	Dry soils on chaparral and coastal sage scrub from 3 to 2,904 feet in elevation.	No	**Low**. There is marginal habitat in the Waterman Basins.
Lycium parishii Parish's desert-thorn	Fed: None CA: None CNPS: 2B.3	Coastal scrub and Sonoran desert scrub habitat. From 984 to 3,281 feet in elevation.	No	**Low**. There is marginal habitat but the only known records are extirpated.
Monardella pringlei Pringle's monardella	Fed: None CA: None CNPS: 1A	Sandy hills covered in coastal sage scrub from 984 to 1,312 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Nasturtium gambelii Gambel's water cress	Fed: **END** CA: **THR** CNPS: 1B.1	Brackish marsh, freshwater marsh, swamps, and wetlands. From 16 to 1,083 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Ribes divaricatum var. parishii Parish's gooseberry	Fed: None CA: None CNPS: 1A	Occurs in riparian woodland, usually in willow swales. From 213 to 328 feet in elevation.	No	**Presumed absent**. There is no suitable habitat and the project site is outside of the known elevation range of this species.
Schoenus nigricans black bog-rush	Fed: None CA: None CNPS: 4.3	Usually found in alkaline marshes and swamps from 492 to 6,562 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Sidalcea neomexicana Salt Spring checkerbloom	Fed: None CA: None CNPS: 2B.2	Occurs in alkali springs and marshes within alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest, and Mojavean desert scrub. From 49 to 5,020 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Sphenopholis obtusata prairie wedge grass	Fed: None CA: None CNPS: 2B.2	Brackish or salt marshes and flats, in lakes or ponds, in rivers or streams, man-made or disturbed habitats, marshes, ridges or ledges, shores or rivers or lakes, woodlands. From 984 to 6,562 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
Streptanthus campestris southern jewelflower	Fed: None CA: None CNPS: 1B.3	Occurs in open, rocky areas in chaparral, lower montane coniferous forest, and pinyon-juniper woodland. From 1,969 to 9,154 feet in elevation.	No	**Presumed absent**. There is no suitable habitat and the project site is outside of the known elevation range of this species.
Symphyotrichum defoliatum San Bernardino aster	Fed: None CA: None CNPS: 1B.2	Grows in grasslands and disturbed areas in the San Gabriel and San Bernardino Mountains and Peninsular Range. Occurs in vernally wet sites including ditches, streams, and springs in many plant communities including meadows and seeps, marshes and swamps, coastal scrub, cismontane woodland, lower montane coniferous woodland, and grassland. From 7 to 6,693 feet in elevation.	No	**Presumed absent**. There is no suitable habitat.
CDFW SENSITIVE HABITATS				
Riversidean Alluvial Fan Sage Scrub	CDFW Sensitive Habitat	Considered a distinct and rare plant community found primarily on alluvial fans and flood plains along the southern bases of the Transverse Ranges and portions of the Peninsular Ranges in southern California. Relatively open vegetation type is adapted to periodic flooding and erosion and is comprised of an assortment of drought-deciduous shrubs and larger evergreen woody shrubs characteristic of both coastal sage scrub and chaparral communities.	No	**Absent**.
Southern Cottonwood Willow Riparian Forest	CDFW Sensitive Habitat	Dominated by cottonwood (*Populus* ssp.) and willow (*Salix* ssp.) trees and shrubs. Considered to be an early successional stage as both species are known to germinate almost exclusively on recently deposited or exposed alluvial soils.	No	**Absent**.
Southern Riparian Scrub	CDFW Sensitive Habitat	Riparian zones dominated by small trees or shrubs, lacking taller riparian trees.	No	**Absent**.
Southern Sycamore Alder Riparian Woodland	CDFW Sensitive Habitat	Occurs below 2,000 meters in elevation, sycamore and alder often occur along seasonally-flooded banks; cottonwoods and willows are also often present. Poison oak, mugwort, elderberry and wild raspberry may be present in understory.	No	**Absent**.

Scientific Name Common Name	**Status**	**Habitat**	**Observed Onsite**	**Potential to Occur**
Southern Willow Scrub	CDFW Sensitive Habitat	Dense, broadleafed, winter-deciduous riparian thickets dominated by several willow species, with scattered emergent cottonwood and sycamore (*Platanus racemosa*). Most stands are too dense to allow much understory development. Loose, sandy or fine gravelly alluvium deposited near stream channels during flood flows. This early seral type requires repeated flooding to prevent succession to Southern Cottonwood-Sycamore Riparian Forest.	Yes	**Present**.

U.S. Fish and Wildlife Service (USFWS) - Federal
END- Federal Endangered
THR- Federal Threatened

California Department of Fish and Wildlife (CDFW) - California
END- California Endangered
THR- California Threatened
CSC- California Species of Concern
WL- Watch List

California Native Plant Society (CNPS)
California Rare Plant Rank
1A Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
1B Plants Rare, Threatened, or Endangered in California and Elsewhere
2B Plants Rare, Threatened, or Endangered in California, but More Common Elsewhere
4 Plants of Limited Distribution – A Watch List

Threat Ranks
0.1- Seriously threatened in California
0.2- Moderately threatened in California
0.3- Not very threatened in California

This page intentionally left blank

Appendix B Site Photographs

This page intentionally left blank

Photograph 1: Facing northwest within the Waterman Basins. The Waterman Basins are generally highly disturbed with a layer of non-native grasses across the bottom and/or on the banks of many of them.

Photograph 2: Facing southeast within the Waterman Basins. Some of the basins are vegetated with Riversidean sage scrub.

Photograph 3: Facing northwest at a southern willow scrub vegetation community within the Waterman Basins.

Photograph 4: Facing northwest within the East Twin Creek Spreading Grounds. The basins within the East Twin Creek Spreading Grounds are predominantly vegetated with non-native grasses and weeds.

Photograph 5: Facing northwest within the East Twin Creek Spreading Grounds. The northernmost basin within the East Twin Creek Spreading Grounds contained a pond.

Photograph 6: Facing southwest within the East Twin Creek Spreading Grounds. Upper East Fork Creek within the Spreading Grounds is vegetated by mulefat scrub.

Photograph 7: Facing south. East Twin Creek, which is paralleled by Alignment 1, is a concrete channel throughout most of its path toward the Santa Ana River.

Photograph 8: Facing south. East Twin Creek, which is paralleled by Alignment 1, is a concrete channel throughout most of its path, but becomes vegetated for its final 1.5 miles upstream of the Santa Ana River.

Appendix C Flora and Fauna Compendium

This page intentionally left blank

Flora Compendium

Scientific Name	Common Name
Acmispon americanus var. *americanus*	Spanish lotus
Acmispon glaber	deerweed
Adenostoma fasciculatum	chamise
Ailanthus altissima	tree of heaven
Alnus rhombifolia	white alder
Ambrosia acanthicarpa	annual bur ragweed
Ambrosia psilostachya	western ragweed
Anthemis cotula	mayweed
Artemisia californica	California sagebrush
Artemisia douglasiana	mugwort
Arundo donax	giant reed
Asclepias californica	California milkweed
Avena fatua	wild oat
Baccharis glutinosa	marsh baccharis
Baccharis salicifolia	mulefat
Bebbia juncea	sweetbush
Bougainvillea spectabilis	great bougainvillea
Bromus diandrus	ripgut brome
Bromus madritensis ssp. *rubens*	red brome
Bromus tectorum	downy chess
Calystegia sepium ssp. *limnophila*	marsh bindweed
Camissoniopsis bistorta	California sun cup
Ceanothus megacarpus	bigpod ceanothus
Centaurea melitensis	tocalote
Cercocarpus betuloides	mountain mahogany
Convolvulus arvensis	bindweed
Croton californicus	California croton
Croton setigerus	doveweed
Cucurbita foetidissima	coyote gourd
Cuscuta sp.	dodder
Cyperus eragrostis	tall umbrella sedge
Cyperus involucratus	umbrella sedge
Datura wrightii	jimson weed
Encelia farinosa	brittlebush
Ephedra sp.	Mormon tea
Epilobium ciliatum	green willow herb
Equisetum arvense	common horsetail
Eriastrum sapphirinum	sapphire woollystar

Scientific Name	Common Name
Eriodictyon crassifolium	thickleaf yerba santa
Eriodictyon trichocalyx	yerba santa
Eriogonum fasciculatum	California buckwheat
Eriogonum gracile	slender buckwheat
Eriophyllum confertiflorum	golden yarrow
Erodium cicutarium	redstem filaree
Eschscholzia californica	California poppy
Eucalyptus sp.	eucalyptus
Eulobus californicus	false mustard
Galium aparine	common bedstraw
Helianthus annuus	common sunflower
Hesperoyucca whipplei	chaparral yucca
Heterotheca grandiflora	telegraph weed
Hirschfeldia incana	shortpod mustard
Juglans californica	southern California black walnut
Lactuca serriola	prickly lettuce
Lamarckia aurea	goldentop grass
Lepidium latifolium	perennial pepperweed
Lepidium sp.	peppergrass
Lepidospartum squamatum	scalebroom
Leptochloa uninervia	Mexican sprangletop
Lupinus bicolor	miniature lupine
Lythrum californicum	California loosestrife
Malacothamnus fasciculatus	chaparral bush mallow
Malva parviflora	cheeseweed
Melica imperfect	small-flowered melic grass
Melilotus albus	white sweetclover
Mimulus guttatus	seep monkeyflower
Mirabilis laevis	wishbone bush
Nasturtium officinale	watercress
Nerium oleander	oleander
Nicotiana glauca	tree tobacco
Oenothera elata ssp. *hirsutissuma*	evening primrose
Opuntia littoralis	prickly pear
Parkinsonia aculeate	Mexican palo verde
Parkinsonia florida	blue paloverde
Paspalum dilatatum	dallis grass
Pennisetum setaceum	fountaingrass
Penstemon spectabilis	showy penstemon
Phacelia distans	common phacelia
Plantago lanceolata	English plantain

Scientific Name	Common Name
Plantago major	common plantain
Platanus racemosa	western sycamore
Pluchea odorata	saltmarsh fleabane
Polygonum lapathifolium	willow weed
Polypogon monspeliensis	rabbitfoot grass
Populus fremontii	Fremont's cottonwood
Pseudognaphalium beneolens	cudweed
Quercus sp.	oak
Raphanus sativus	wild radish
Ricinus communis	castor bean
Rumex crispus	curly dock
Salix exigua	sandbar willow
Salix gooddingii	black willow
Salix lasiolepis	arroyo willow
Salsola tragus	Russian thistle
Salvia apiana	white sage
Salvia columbariae	chia
Sambucus nigra	Mexican elderberry
Schinus molle	Peruvian pepper
Schismus barbatus	Mediterranean grass
Solanum douglasii	Douglas' nightshade
Sonchus oleraceus	common sowthistle
Stachys rigida var. *rigida*	rough hedgenettle
Stephanomeria exigua	wreath plant
Stipa miliacea	smilo grass
Tamarix ramosissima	Mediterranean tamarisk
Toxicodendron diversilobum	poison oak
Tribulus terrestris	puncturevine
Typha angustifolia	narrowleaf cattail
Typha latifolia	broadleaf cattail
Ulmus sp.	elm
Urtica dioica	stinging nettle
Vitis girdiana	wild grape
Washingtonia robusta	Mexican fan palm
Xanthium strumarium	cocklebur

Fauna Compendium

Scientific Name	Common Name
Birds	
Accipiter cooperii	Cooper's hawk
Aeronautes saxatalis	white-throated swift
Agelaius phoeniceus	red-winged blackbird
Aimophila ruficeps canescens	southern California rufous-crowned sparrow
Anas platyrhynchos	mallard (clean and domestic)
Anser anser	graylag goose
Anser cygnoides	swan goose
Aphelocoma californica	western scrub-jay
Archilochus alexandri	black-chinned hummingbird
Ardea alba	great egret
Branta canadensis	Canada goose
Buteo jamaicensis	red-tailed hawk
Buteo lineatus	red-shouldered hawk
Cairina moschata	Muscovy
Callipepla californica	California quail
Calypte anna	Anna's hummingbird
Calypte costae	Costa's hummingbird
Chamae fasciata	wrentit
Charadrius vociferus	killdeer
Chen rossii	Ross's goose
Chondestes grammacus	lark sparrow
Colaptes auratus	northern flicker
Columba livia	rock pigeon
Corvus brachyrhynchos	American crow
Corvus corax	common raven
Empidonax difficilis	Pacific-slope flycatcher
Falco sparverius	American kestrel
Fulica americana	American coot
Geococcyx californianus	greater roadrunner
Geothlypis trichas	common yellowthroat
Haemorhous mexicanus	house finch
Hirundo rustica	barn swallow
Icterus bullockii	Bullock's oriole
Icterus cucullatus	hooded oriole
Melanerpes formicivorus	acorn woodpecker
Melospiza melodia	song sparrow
Melozone crissalis	California towhee
Mimus polyglottos	northern mockingbird
Molothrus ater	brown-headed cowbird
Myiarchus cinerascens	ash-throated flycatcher
Nycticorax nycticorax	black-crowned night-heron
Oxyura jamaicensis	ruddy duck
Passer domesticus	house sparrow
Passerina amoena	lazuli bunting
Passerina caerulea	blue grosbeak

Passerina cyanea	indigo bunting
Petrochelidon pyrrhonota	cliff swallow
Phainopepla nitens	phainopepla
Phalacrocorax auritus	double-crested cormorant
Pheucticus melanocephalus	black-headed grosbeak
Picoides nuttallii	Nuttall's woodpecker
Pipilo maculatus	spotted towhee
Piranga ludoviciana	western tanager
Polioptila caeulea	blue-gray gnatcatcher
Psaltriparus minimus	bushtit
Quiscalus mexicanus	great-tailed grackle
Salpinctes obsoletus	rock wren
Sayornis nigricans	black phoebe
Sayornis saya	Say's phoebe
Selasphorus rufus/sasin	rufous/Allen's hummingbird
Selasphorus sasin	Allen's hummingbird
Setophaga petechia	yellow warbler
Sialia mexicana	western bluebird
Spinus psaltria	lesser goldfinch
Spinus tristis	American goldfinch
Stelgidopteryx serripennis	northern rough-winged swallow
Streptopelia decaocto	Eurasian collared-dove
Sturnus vulgaris	European starling
Thryomanes bewickii	Bewick's wren
Toxostoma redivivum	California thrasher
Troglodytes aedon	house wren
Turdus migratorius	American robin
Tyrannus verticalis	western kingbird
Tyrannus vociferans	Cassin's kingbird
Vireo bellii pusillus	least Bell's vireo
Zenaida macroura	mourning dove
Mammals	
Felis catus	housecat
Otospermophilus beecheyi	California ground squirrel
Sciurus niger	fox squirrel
Reptiles	
Aspidoscelis tigris stejnegeri	coastal whiptail
Uta stansburiana	common side-blotched lizard

This page intentionally left blank